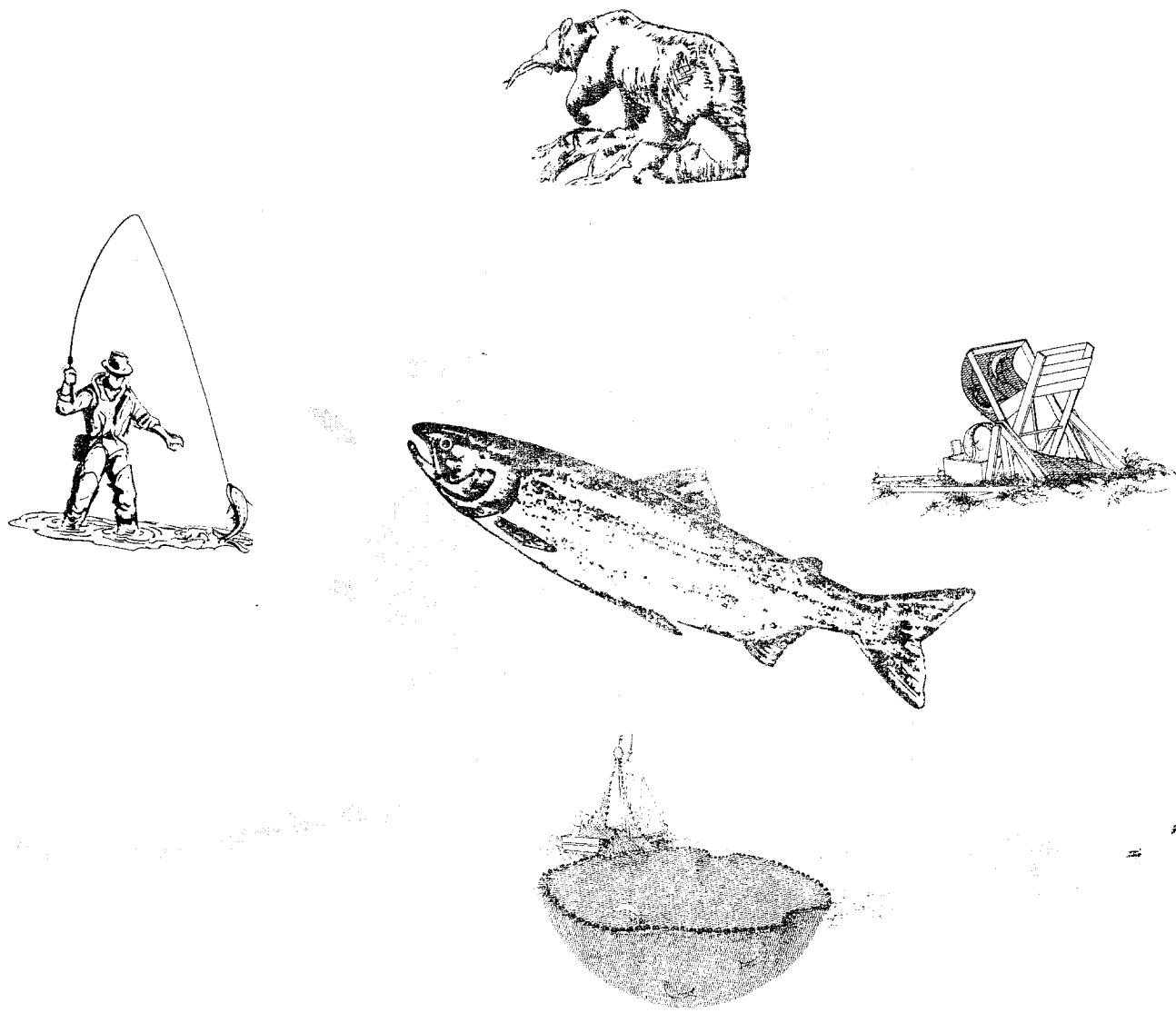


Alaska Fisheries Technical Report Number 8

WATER RESOURCE INVENTORY AND ASSESSMENT, ARCTIC NATIONAL WILDLIFE REFUGE

1989 Stream Discharge Gaging Data



April 1990

Region 7
U.S. Fish and Wildlife Service
Department of the Interior

**WATER RESOURCE INVENTORY AND ASSESSMENT
ARCTIC NATIONAL WILDLIFE REFUGE**

1989 Stream Discharge Gaging Data

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April 1990

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STREAM DISCHARGE 1989

Introduction

This progress report is intended to provide an accounting of the accomplishments made during the second year of a multi-year water resource inventory in the coastal plain (1002 area), Arctic National Wildlife Refuge. It is also intended to extend available stream discharge and water temperature data to resource specialists for consideration in other inventory or management activities. This data represents the hydrologic conditions for one year, 1989. Additional years of data collection are required before any characterization of the hydrologic regime is appropriate.

The 1002 area of the Arctic National Wildlife Refuge is located in a remote area of Alaska adjacent to the Beaufort Sea. Because of its remoteness, logistical problems, small populace of the area, harsh climatic characteristics, and lack of competitive water uses in the past, there has been little interest by either state or federal agencies to measure water yield (Appendix A) and flood frequencies in the 1002 area. The nearest stream gaging station (US Geological Survey gage #15908000, Sagavanirktok River) is located 80 miles west of the Canning River, the western most boundary of the 1002 area. Because the Sagavanirktok River is larger than any river within the 1002 area, the data base for this river can not be extrapolated to streams and rivers in the 1002 area for water availability and flood characteristics.

Childers, et al. (1977) reported a reconnaissance level investigation of rivers, springs, aufeis fields, and lakes of the north slope, including the 1002 area. Data reported by Childers include channel characteristics, watershed basin characteristics and estimated flood characteristics of the Canning River, Marsh Creek, Sadlerochit River, Hulahula River, Jago River, and Okerokovik River. Childers also reported discharge rates and selected water quality parameters for the Katakturuk River Spring, Sadlerochit Spring, Hulahula River Spring, and Okerokovik River Spring. Six lakes were sampled for water quality and some data for ice thickness and total lake depth were reported.

The only other hydrologic data reported for the 1002 area was Lyons (1989). This report is a continuation of that study. Daum, Rost, and Smith (1984), Glesne and Deschermeier (1984), and Smith and Glesne (1982) reported selected physical and chemical characteristics of rivers and springs across the 1002 area.

The objective of this years activities was to continue a program to quantify water yield and seasonal stream discharge of watersheds making up the 1002 area of the Arctic National

Wildlife Refuge. A secondary objective was to measure surface water temperatures at stream discharge gaging sites.

Methods

The Water Resources Branch initiated a stream gaging network consisting of 8 stream gaging stations in the 1002 area in 1988. In 1989 the stream gaging network was expanded to 10 gaging sites (Figure 1) with addition of gages to the Niguanak and Sikrelurak Rivers. Stream discharge data was collected for the Tamayariak River, West Fork Itkilyariak Creek, Sadlerochit River, Sadlerochit Spring Creek, Akutoktak River, Niguanak River, and Sikrelurak River. Because the Tamayariak River is hydrologically diverse and has abundant fish and wildlife resources, four stream gages were installed on this watershed.

Parameters measured at each gaging site were water depth and water temperature. Water depth and water temperature were measured at 5 minute intervals utilizing submerged pressure transducer and temperature probes attached to a computerized field recorder. Water depth was measured to the nearest 0.01 foot (ft) and temperature to the nearest 0.1°C. The field recorder summarizes this data automatically at the end of each 24 hour period into a report and provides the 24 hour average depth, maximum depth, time of maximum depth, minimum depth, time of minimum depth, 24 hour average temperature, maximum temperature, time of maximum temperature, minimum temperature, and time of minimum temperature. This report is stored in a computer chip which can later be down-loaded onto a computer.

Throughout the data collection period, weekly visits to each site were made to collect calibration data. Calibration data were collected using standard stream discharge measurement procedures (Buchanan and Somers 1969; Lyons 1988) and included stream discharge and water surface elevation. Through regression analysis of stream depth (x) and stream discharge (y), linear and polynomial regression equations were obtained for each stream gage. Using the regression equations developed, water depth data recorded by the stream gages was converted to stream discharge.

Results

All ten stream gaging stations were installed by June 29, 1989, and most were in service until September 23, 1989. Table 1 gives the legal description of the locations for each stream gage. Polynomial regression equations were obtained for each stream gaging site, except for Niguanak River and Sadlerochit Spring Creek, (Table 2). A simple linear regression was used for

3
Figure 1.—The 1002 area of the Arctic National Wildlife Refuge with stream discharge gaging station locations.

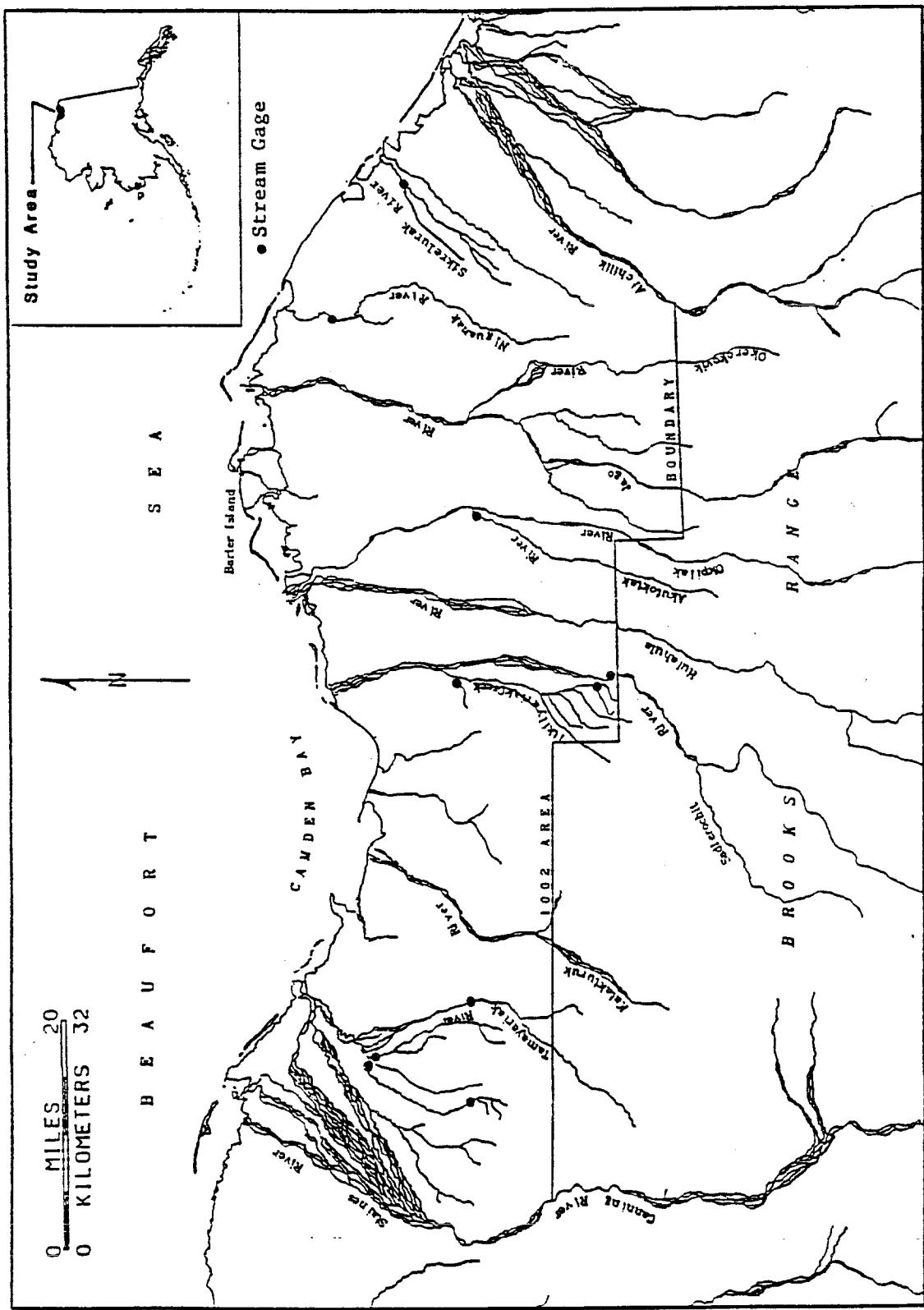


Table 1.-Stream gaging station locations.

Watershed	Gage Location
Tamayariak River	SW1/4NE1/4 S.35, T6N, R26E
Lower West Fork, Tamayariak River	NW1/4NW1/4 S.12, T7N, R25E
Middle Fork, Tamayariak River	Center S.12, T7N, R25E
Upper West Fork, Tamayariak River	W1/2W1/2 S.33, T6N, R25E
West Fork, Itkilyariak Creek	NE1/4NW1/4NW1/4 S.33, T6N, R31E
Sadlerochit River	NW1/4SW1/4 S.31, T4N, R32E
Sadlerochit Spring Creek	NE1/4NW1/4 S.36, T4N, R31E
Akutoktak River	Center S.36, T6N, R33E
Niguanak River	NW1/4NW1/4NE1/4 S.36, T8N, R36E
Sikrelurak River	SE1/4SE1/4 S.36, T7N, R38E

Sadlerochit Spring Creek because it is a relatively stable spring fed stream with little variation in discharge. A better fit of the calibration data for the Niguanak River was obtained using a power curve regression. The coefficient of determination (R^2) for each regression equation ranged from 0.965 to 0.998. Utilizing these regression equations, water depth measurements recorded with stream gaging equipment were converted to stream discharge (Appendix B).

Water temperatures measured at each stream gaging site are given in Appendix C. The daily average water temperature as well as the minimum and maximum temperatures are provided.

Table 2.--Stream discharge calibration data regression equations.

Watershed	Regression Equation	R ²
Tamayariak River	$y = -129.476 + 58.158x + 107.2978x^2$	0.993
Lower West Fork, Tamayariak R.	$y = 118.052 - 183.414x + 74.145x^2$	0.988
Middle Fork, Tamayariak River	$y = 807.32 - 1152.5x + 510.07x^2 - 63.594x^3$	0.989
Upper West Fork, Tamayariak R.	$y = -10924.8 + 9265.7x - 2619.8x^2 + 247.75x^3$	0.998
West Fork, Itkilyariak Creek	$y = -106.85 + 332.29x - 360.25x^2 + 140.73x^3$	0.998
Sadlerochit River	$y = 418.12 - 611.028x + 282.6384x^2$	0.998
Sadlerochit Spring Creek	$y = -233.4441 + 194.0837x$	0.965
Akutoktak River	$y = -333.94 + 499.87x - 254.77x^2 + 44.06x^3$	0.993
Niguanak River	$y = 0.0584x^6.17$	0.980
Sikrelurak River	$y = 206.387 - 351.41x + 148.26x^2$	0.977

Discussion

Fiscal Year 1989 was the second year of a multi-year water resource inventory program designed to quantify stream discharge rates, discharge frequency distribution, average monthly water yields, and flood frequencies and sizes within the 1002 area of the Arctic National Wildlife Refuge. The stream discharge data from these first two years are significantly different.

Precipitation during 1988 was 76 percent below average (National Oceanic and Atmospheric Administration 1988). Precipitation records for 1989 are not available. However, the snowpack accumulation during 1989 was 127 percent of average (Soil Conservation Service 1989). The higher stream discharge rates and steadily increasing spring flow rates at Sadlerochit Spring suggest that the trend toward a wetter than normal year continued throughout the summer months. Table 3 compares the average stream discharge rates per square mile of watershed drainage area for both 1988 and 1989. Average discharge ranged from 48 to 446 percent higher in 1989.

Several data gaps exist in the stream discharge and water temperature data (Appendix B and C). Problems included electrical malfunctions with the equipment and bears chewing the electric cables leading from the pressure transducer probes to the field recorders. The transducer cable at the Lower West Fork, Tamayariak River was bitten in half, presumably by a bear, on August 6, 1989. The incident was discovered two days later and the cable was reconnected to the field recorder.

The pressure transducer and anchor at the Sikrelurak River gage were pulled, probably by a bear, to the stream bank and into very shallow water on July 3, 1989. The anchor and pressure transducer were relocated back to deeper water and near the original position within the same day and only one day of data was lost.

Two other stream gaging stations, Akutoktak River and Upper West Fork, Tamayariak River, experienced electronic problems which caused significant data gaps throughout the summer season. These breakdowns are not unexpected problems and must be dealt with as they occur. The stream gaging equipment at the Akutoktak River gaging site was operational only 39 percent of the field season. The Upper West Fork, Tamayariak River stream gaging equipment was operational 68 percent of the field season.

Table 3.-Comparative analysis of stream discharge data for 1988 and 1989 in cubic feet per second per square mile (cfsm).

Watershed	Average Discharge (cfsm)		Increase from 1988 (%)
	1988	1989	
Tamayariak River	1.38	2.04	48
Lower West Fork, Tamayariak River	0.77	1.24	61
Middle Fork, Tamayariak River	1.06	1.57	48
Upper West Fork, Tamayariak River	1.01	1.82	80
Itkilyariak Creek	0.88	--	--
West Fork, Itkilyariak Creek	--	2.16	--
Sadlerochit River	1.09	2.72	150
Akutoktak River	0.26	1.42	446
Niguanak River	--	1.35	--
Sikrelurak River	--	0.70	--

References

- Buchanan, T.J., and W.P. Somers. 1969. Discharge measurements at gaging stations. U.S. Geological Survey Techniques Water-Resources Investigation of the United States Geological Survey, Book 8, Chapter A8, Washington D.C.
- Childers, J.M., C.E. Sloan, J.P. Meckel, and J.W. Nauman. 1977. Hydrologic reconnaissance of the eastern north slope, Alaska. U.S. Geological Survey Open-File Report 77-492, Anchorage, Alaska.
- Daum, D., P. Rost, and M. Smith. 1984. Fisheries studies on the north slope of the Arctic National Wildlife Refuge, 1983. Pages 464-522 in G.W. Garner and P.E. Reynolds, editors. Arctic National Wildlife Refuge coastal plain resource assessment. 1983 update report, baseline study of the fish, wildlife, and their habitats. U.S. Fish and Wildlife Service, Anchorage, Alaska.
- Glesne, R.S., and S.J. Deschermeier. 1984. Abundance, distribution and diversity of aquatic microinvertebrates on the north slope of the Arctic National Wildlife Refuge, 1982 and 1983. Pages 523-569 in G.W. Garner and P.E. Reynolds, editors. Arctic National Wildlife Refuge coastal plain resource assessment: 1983 update report, baseline study of the fish, wildlife, and their habitats. U.S. Fish and Wildlife Service, Anchorage, Alaska.
- Lyons, S.M. 1988. Stream discharge measurement handbook. U.S. Fish and Wildlife Service, Region 7, Anchorage, Alaska.
- Lyons, S.M. 1989. Water resource inventory and assessment, Arctic National Wildlife Refuge, 1988 stream discharge gaging data. U.S. Fish and Wildlife Service, Progress Report, Anchorage, Alaska.
- National Oceanic and Atmospheric Administration. 1988. Local climatological data monthly summary, Barter Island, Alaska. U.S. Department of Commerce, Asheville, North Carolina.
- Smith, M.W., and R.S. Glesne. 1982. Aquatic studies on the north slope of the Arctic National Wildlife Refuge, 1981 and 1982. Pages 291-364 in G.W. Garner and P.E. Reynolds, editors. Arctic National Wildlife Refuge coastal plain resource assessment: 1982 update report, baseline study of the fish, wildlife, and their habitats. U.S. Fish and Wildlife Service, Anchorage, Alaska.

Soil Conservation Service. 1989. Alaska snow survey,
May 1, 1989. U.S. Department of Agriculture, Anchorage,
Alaska.

APPENDIX A

Glossary of Hydrologic Terms

Glossary of Hydrologic Terms

Auf'eis: An ice feature that is formed by water overflowing onto a surface, such as river ice or gravel deposits, and freezing, with subsequent layers created by water overflowing onto the ice surface itself and freezing.

Discharge rate: The rate of flow, or volume of water flowing in a given stream at a given place and within a given period of time, expressed as cubic feet per second.

Flood frequencies: The probable frequency of recurrence of a flood event, expressed as the 10-year flood, 25-year flood, 100-year flood, etc.

Water yield: The total outflow of water from a watershed, expressed in units of acre-feet or gallons.

APPENDIX B

Surface Water Discharge Records

(Listed Alphabetically)

Note:

TIME OF MAX and TIME OF MIN is military time, e.g. 0 is midnight, 40 is 0040 hours, 615 is 0615 hours, etc.

ARCTIC NATIONAL WILDLIFE REFUGE

Akutoktak River

LOCATION.-Lat $60^{\circ}49'56''$, Long $143^{\circ}46'50''$, in center sec.36, T.6N., R.33E., 0.6 mile upstream from confluence with the Okpilak River, 20.8 miles south-southwest of Kaktovik, Alaska.

DRAINAGE AREA.- 97.1 mi², of which 66 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 1,703 cfs Aug. 20, 1989; Minimum discharge, 2 cfs July 3, 5-7, 1989.

JUNE 1989

	AVE.DAILY DISCH. DATE	TIME OF MAX DISCH.	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH.	MIN DISCH. CU.FT/SEC
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	187	20	212	1315	161
16	143	0	190	1600	122
17	105	0	124	2350	94
18	74	15	96	2355	58
19	52	15	58	1320	49
20	48	730	52	1645	45
21	42	0	46	2355	38
22	37	2350	44	935	32
23	45	1955	46	1240	44
24	48	1700	50	220	45
25	46	2050	49	855	45
26	42	45	49	2355	34
27	29	0	34	2355	23
28	20	0	23	2355	16
29	14	5	16	2340	12
30	10	10	12	2340	9
	TOTAL	942	1,101	827	
	AVERAGE	59	69	52	
	MAXIMUM	187	212	161	
	MINIMUM	10	12	9	
	ACRE FT	1,868			

ARCTIC NATIONAL WILDLIFE REFUGE

Akutoktak River

JULY 1989

	AVE.DAILY DISCH. DATE	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	8	0	9	2350	7
2	6	0	7	2355	5
3	4	1255	5	1220	2
4	4	10	4	2355	3
5	3	945	3	2350	2
6	2	1300	3	2355	2
7	3	1800	4	330	2
8	4	2335	5	855	4
9	6	1225	6	0	5
10	7	2355	21	1205	5
11	23	1200	26	2335	20
12	44	630	55	0	21
13	27	5	35	2345	21
14	16	5	21	2355	12
15	10	0	12	2355	8
16	10	2355	40	1000	7
17	290	1555	678	0	40
18	344	5	549	2355	215
19	146	0	223	2355	110
20	114	1710	124	530	103
21	235	2215	694	445	117
22	469	10	670	2330	333
23	295	100	338	2135	264
24	719	250	1,643	0	268
25	444	730	529	2350	354
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
31	- - -	- - -	- - -	- - -	- - -
	TOTAL	3,233	5,704	1,930	
	AVERAGE	129	228	77	
	MAXIMUM	719	1,643	354	
	MINIMUM	2	3	2	
	ACRE FT	6,413			

ARCTIC NATIONAL WILDLIFE REFUGE

Akutoktak River

AUGUST 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	66	2355	90	1600	59
14	608	910	951	0	90
15	549	130	825	2345	370
16	392	1825	438	830	354
17	349	5	420	2355	290
18	223	0	286	2355	174
19	138	5	174	2355	114
20	251	2350	1,703	745	107
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
31	- - -	- - -	- - -	- - -	- - -
TOTAL	2,576		4,887		1,558
AVERAGE	322		611		195
MAXIMUM	608		1,703		370
MINIMUM	66		90		59
ACRE FT	5,109				

ARCTIC NATIONAL WILDLIFE REFUGE

Itkilyariak Creek, West Fork

LOCATION.-Lat 69°50'19", Long 144°24'43", in NE1/4NW1/4NW1/4 sec.33, T.6N., R.31E., 0.6 mi. upstream from the confluence with the Itkilyariak Creek, 28 miles southwest of Kaktovik, Alaska.

DRAINAGE AREA.-26.9 mi², of which 8.7 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 3rd Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 1,419 cfs Aug. 20, 1989; Minimum discharge, 0 cfs July 2-6, 1989.

JUNE 1989					
	AVE.DAILY DISCH. DATE	TIME OF MAX DISCH.	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH.	MIN DISCH. CU.FT/SEC
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	61	2115	151	1045	37
16	78	5	122	855	59
17	52	0	78	1205	37
18	34	0	61	1810	26
19	34	1845	41	1115	30
20	27	2100	36	1150	22
21	24	0	32	1515	20
22	18	0	23	2355	16
23	15	5	16	1055	14
24	21	2355	51	450	15
25	27	30	57	2355	17
26	13	0	16	2355	12
27	10	0	12	2355	8
28	8	1605	8	2355	7
- 29 -	7	0	7	2310	6
30	5	5	6	2355	4
<hr/>					
TOTAL	434		717		330
AVERAGE	27		45		21
MAXIMUM	78		151		59
MINIMUM	5		6		4
ACRE FT	861				

ARCTIC NATIONAL WILDLIFE REFUGE

Itkilyariak Creek, West Fork

JULY 1989

DATE	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	4	1430	5	2335	3
2	2	15	3	2345	0
3	0	0	0	2115	0
4	0	2025	2	815	0
5	0	0	2	1615	0
6	2	2345	5	845	0
7	7	2325	8	10	5
8	7	0	8	2355	6
9	4	5	6	2350	3
10	4	2355	12	1335	3
11	59	545	167	0	12
12	20	0	28	2355	16
13	14	0	16	2355	12
14	11	10	12	2355	10
15	8	0	10	2005	8
16	18	2350	112	0	8
17	218	730	443	15	112
18	98	50	143	2350	59
19	41	0	59	2350	32
20	31	1535	33	2355	29
21	35	2140	46	540	27
22	41	20	45	2350	36
23	33	5	36	2355	30
24	29	2350	36	1245	28
25	61	355	73	5	36
26	251	2340	515	10	56
27	320	140	554	2355	159
28	92	0	159	2345	59
29	44	5	61	2350	33
30	28	0	33	2345	24
31	23	2310	24	645	22
<hr/>					
TOTAL	1,505		2,656		828
AVERAGE	49		86		27
MAXIMUM	320		554		159
MINIMUM	0		0		0
ACRE FT	2,985				

ARCTIC NATIONAL WILDLIFE REFUGE

Itkilyariak Creek, West Fork

AUGUST 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	29	2120	35	0	24
2	35	2155	36	520	34
3	139	1825	478	5	36
4	251	0	401	2355	143
5	92	5	139	2355	67
6	54	0	67	2355	46
7	42	10	46	2335	38
8	35	0	38	2355	32
9	29	0	32	2345	26
10	25	5	26	1830	24
11	26	1810	27	45	24
12	26	15	27	2335	24
13	37	2330	745	950	22
14	409	30	732	1650	287
15	176	0	293	1540	143
16	184	1640	213	5	159
17	122	5	180	2325	85
18	63	5	85	2350	48
19	40	25	49	2350	34
20	300	1825	1,419	500	32
21	554	25	1,084	2355	245
22	139	0	245	2350	85
23	59	0	85	2350	45
24	37	5	45	1945	33
25	34	1020	36	2345	33
26	31	15	33	2110	29
27	30	1315	32	2355	28
28	27	15	29	1910	27
29	27	1650	27	2355	26
30	26	20	27	2150	25
31	67	1930	116	15	25
	TOTAL	3,145	6,827	1,929	
	AVERAGE	101	220	62	
	MAXIMUM	554	1,419	287	
	MINIMUM	25	26	22	
	ACRE FT	6,238			

ARCTIC NATIONAL WILDLIFE REFUGE

Itkilyariak Creek, West Fork

SEPTEMBER 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	80	0	106	2350	57
2	46	0	59	2205	44
3	45	1520	48	155	44
4	40	30	45	2325	35
5	32	0	36	2250	29
6	36	2340	51	0	29
7	56	1315	63	2355	49
8	40	0	49	2355	34
9	29	0	34	2340	27
10	25	25	27	2205	24
11	26	2355	29	5	24
12	31	2330	34	30	29
13	45	1940	54	0	33
14	48	0	52	915	44
15	40	25	48	2335	34
16	27	10	34	2355	22
17	20	0	22	745	18
18	15	5	20	750	12
19	15	1835	17	930	13
20	11	0	13	835	9
21	12	515	14	2355	9
22	9	1200	11	2335	8
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	728		866		627
AVERAGE	33		39		29
MAXIMUM	80		106		57
MINIMUM	9		11		8
ACRE FT	1,444				

ARCTIC NATIONAL WILDLIFE REFUGE

Niguanak River

LOCATION.-Lat 70°35", Long 143°1'54", in NW1/4NW1/4NE1/4 sec.36, T.8N., R.36E., 6 mi. upstream from the mouth, 16.5 mi. southeast of Kaktovik, Alaska.

DRAINAGE AREA.-136.2 mi².

REMARKS.-This is a 5th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 2,071 cfs Aug. 21, 1989; Minimum discharge, 3 cfs July 3, 1989.

JUNE 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME	MAX DISCH. CU.FT/SEC	TIME	MIN DISCH. CU.FT/SEC
		OF MAX DISCH. CU.FT/SEC	OF MIN DISCH. CU.FT/SEC		
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	597	15	857	1620	512
15	491	2345	835	1315	395
16	550	325	1,026	1650	306
17	279	2250	565	1400	115
18	227	115	557	1715	109
19	158	225	177	920	140
20	123	2355	206	1525	60
21	187	405	301	1400	111
22	150	410	346	1825	58
23	109	515	209	1640	42
24	147	500	258	1555	78
25	137	500	288	1750	49
26	109	510	220	1710	43
27	94	350	216	1705	32
28	63	530	152	1710	20
29	53	525	115	1755	23
30	84	955	174	1835	37
TOTAL	3,558		6,502		2,130
AVERAGE	209		382		125
MAXIMUM	597		1,026		512
MINIMUM	53		115		20
ACRE FT	7,057				

ARCTIC NATIONAL WILDLIFE REFUGE

Niguanak River

JULY 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	44	525	119	1805	12
2	38	545	52	0	30
3	18	540	56	1805	3
4	44	2355	119	0	19
5	89	335	172	1330	46
6	60	455	132	1620	20
7	140	915	169	0	71
8	50	120	137	1825	14
9	30	715	69	1755	9
10	34	655	68	1710	8
11	71	610	113	1805	39
12	42	545	89	1810	17
13	27	745	58	1715	10
14	30	620	69	1635	10
15	43	540	86	1650	23
16	109	2345	166	0	47
17	82	5	166	1855	42
18	30	530	92	1750	7
19	51	2355	90	0	20
20	56	605	101	1830	23
21	79	940	99	0	51
22	67	805	94	1835	36
23	57	605	126	1615	18
24	69	620	109	1745	38
25	53	505	107	1625	16
26	145	2355	335	500	72
27	311	320	362	2355	254
28	199	15	258	2325	158
29	109	5	158	1845	57
30	94	605	193	1745	37
31	81	440	147	2345	63
TOTAL	2,352		4,111		1,270
AVERAGE	76		133		41
MAXIMUM	311		362		254
MINIMUM	18		52		3
ACRE FT	4,665				

ARCTIC NATIONAL WILDLIFE REFUGE

Niguanak River

AUGUST 1989

	AVE.DAILY DISCH. DATE	TIME OF MAX DISCH.	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH.	MIN DISCH. CU.FT/SEC
1	61	5	63	1755	59
2	60	625	61	2035	59
3	67	2355	86	0	59
4	107	1105	117	5	86
5	94	145	107	2355	82
6	75	5	82	2350	68
7	64	115	68	2050	60
8	59	610	61	1955	57
9	55	550	58	2055	48
10	50	440	53	1730	47
11	52	2355	55	55	49
12	57	1935	60	2150	55
13	60	2355	75	15	56
14	203	2320	335	0	75
15	311	430	346	2340	275
16	266	205	279	1640	258
17	234	10	266	2335	213
18	193	25	220	2355	166
19	147	0	169	2330	130
20	320	2350	1,935	305	128
21	1,148	310	2,071	2000	520
22	413	610	752	1850	193
23	288	620	491	1800	147
24	227	715	378	1650	135
25	231	725	306	1600	174
26	166	105	242	1530	105
27	160	945	220	1730	101
28	187	655	223	1600	142
29	180	845	209	1825	150
30	203	725	220	0	187
31	246	2355	292	5	209
	TOTAL	5,984	9,900	4,093	
	AVERAGE	193	319	132	
	MAXIMUM	1,148	2,071	520	
	MINIMUM	50	53	47	
	ACRE FT	11,869			

ARCTIC NATIONAL WILDLIFE REFUGE

Niguanak River

SEPTEMBER 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	266	500	335	1750	247
2	266	705	306	1620	284
3	573	2310	938	0	365
4	581	125	915	1940	397
5	346	600	527	1810	284
6	367	2355	432	1455	361
7	297	640	464	1725	215
8	160	730	279	1830	98
9	105	820	145	1715	83
10	115	2355	183	1540	96
11	362	2355	527	0	247
12	413	245	542	2050	357
13	395	2355	614	5	373
14	657	1220	814	1310	504
15	557	435	694	2345	452
16	341	130	425	2355	341
17	227	10	279	2305	265
18	163	145	209	2235	191
19	166	720	183	2355	159
20	119	800	132	2355	137
21	117	935	196	2125	67
22	111	1245	199	0	88
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	6,704		9,338		5,611
AVERAGE	305		424		255
MAXIMUM	657		938		504
MINIMUM	105		132		67
ACRE FT	13,297				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit River

LOCATION.-Lat 69°39'30", Long 144°22'52", in NW1/4SW1/4 sec.31, T.4N., R.32E., 0.5 miles below the Wilderness boundary, 37.5 miles southwest of Kaktovik, Alaska.

DRAINAGE AREA.-520.1 mi², of which 517.5 mi² are located within the Arctic National Wildlife Refuge Wilderness area. Glaciers account for 2.3 percent of the drainage area or about 12 mi² depending on existing climatic conditions.

REMARKS.-This is a 6th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 5,733 cfs Aug. 4, 1989; Minimum discharge, 70 cfs Sept. 27, 1988.

JUNE 1989

DATE	AVE.DAILY	TIME	MAX	TIME	MIN
	DISCH. CU.FT/SEC	OF MAX DISCH.	DISCH. CU.FT/SEC	OF MIN DISCH. CU.FT/SEC	DISCH. CU.FT/SEC
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	- - -	- - -	- - -	- - -	- - -
19	1,240	255	2,027	2140	856
20	923	2230	1,345	1310	749
21	1,151	2355	1,924	1530	838
22	1,582	2355	2,193	1515	1,275
23	2,056	210	2,733	1545	1,621
24	2,012	340	2,286	1345	1,756
25	3,315	535	4,977	10	2,193
26	2,613	5	3,568	1850	2,056
27	1,783	30	2,162	1635	1,556
28	1,595	230	1,797	1625	1,442
29	1,530	310	1,853	1945	1,310
30	1,369	315	1,518	1940	1,240
<hr/>					
TOTAL	21,169		28,383		16,892
AVERAGE	1,764		2,365		1,408
MAXIMUM	3,315		4,977		2,193
MINIMUM	923		1,345		749
ACRE FT	41,988				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit River

JULY 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. DISCH.	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. DISCH.	MIN DISCH. CU.FT/SEC
1	1,275	325	1,442	2320	1,151
2	1,013	40	1,162	1115	856
3	775	40	875	2100	625
4	649	25	698	1100	417
5	749	2335	820	30	665
6	866	610	913	1920	811
7	923	525	962	1950	875
8	1,173	2030	1,530	0	953
9	1,275	10	1,480	2055	1,140
10	1,129	135	1,206	2055	1,044
11	1,217	2350	1,896	10	1,075
12	2,147	1215	2,431	2345	1,825
13	1,530	10	1,839	2240	1,310
14	1,275	10	1,333	2245	1,195
15	1,162	340	1,229	2205	1,096
16	1,107	2340	1,556	1840	1,003
17	2,350	2300	3,708	105	1,333
18	4,124	715	5,336	2045	3,431
19	2,698	15	3,628	2350	1,997
20	1,797	0	2,027	2130	1,661
21	1,811	1040	1,953	50	1,661
22	2,664	1800	3,470	5	1,728
23	2,579	45	3,127	2335	2,147
24	2,027	2345	2,366	1745	1,839
25	2,178	335	2,431	2005	1,924
26	2,132	315	2,480	2255	1,797
27	2,962	1510	3,749	10	1,825
28	2,546	20	3,373	2345	1,939
29	1,595	0	1,953	2345	1,310
30	1,162	5	1,321	2325	1,013
31	943	20	1,013	2335	866
TOTAL	51,833		63,307		42,512
AVERAGE	1,672		2,042		1,371
MAXIMUM	4,124		5,336		3,431
MINIMUM	649		698		417
ACRE FT	102,809				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit River

AUGUST 1989

DATE	AVE.DAILY	TIME	MAX	TIME	MIN
	DISCH. CU.FT/SEC	OF MAX DISCH. CU.FT/SEC	DISCH. CU.FT/SEC	OF MIN DISCH. CU.FT/SEC	
1	894	2345	943	105	856
2	1,742	1335	2,027	0	943
3	1,881	2350	2,529	1915	1,728
4	4,385	1545	5,733	0	2,563
5	3,411	45	4,653	2340	2,630
6	2,286	10	2,681	2345	2,012
7	1,853	115	2,041	2350	1,661
8	1,608	15	1,715	2335	1,480
9	1,455	240	1,530	2355	1,345
10	1,298	5	1,381	2340	1,184
11	1,151	250	1,217	2320	1,065
12	1,054	515	1,096	2355	982
13	1,003	1530	1,033	25	982
14	1,151	2350	2,698	40	993
15	3,053	420	3,769	1850	2,630
16	2,563	745	2,838	2210	2,334
17	2,193	155	2,414	2320	1,939
18	1,825	220	2,012	2245	1,608
19	1,430	5	1,661	2315	1,252
20	1,173	40	1,263	2235	1,096
21	1,997	1805	3,509	155	1,107
22	2,366	20	3,145	2350	1,769
23	1,492	30	1,825	2355	1,252
24	1,096	5	1,263	2355	962
25	885	15	982	1720	829
26	913	840	953	2245	866
27	820	15	875	2155	775
28	749	320	793	2340	673
29	657	25	681	2330	633
30	625	45	649	2345	595
31	572	0	595	2350	550
TOTAL	49,581		60,504		41,294
AVERAGE	1,599		1,952		1,332
MAXIMUM	4,385		5,733		2,630
MINIMUM	572		595		550
ACRE FT	98,342				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit River

SEPTEMBER 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	904	1720	1,139	15	582
2	982	0	1,077	2345	897
3	829	0	906	2355	793
4	740	125	793	2215	721
5	673	5	721	2310	667
6	602	15	675	2305	596
7	572	2335	697	810	575
8	784	1150	870	0	690
9	649	10	760	2355	617
10	536	15	617	2340	535
11	501	2340	562	420	516
12	820	2130	1,077	35	562
13	962	100	1,057	2200	915
14	1,118	1415	1,192	45	933
15	943	5	1,108	2315	827
16	723	10	835	2345	682
17	565	20	690	1620	562
18	448	0	562	1500	444
19	359	5	492	1435	363
20	255	0	389	1800	263
21	234	320	339	2355	228
22	176	910	232	2355	193
23	158	1715	232	940	161
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	14,533		17,022		13,322
AVERAGE	632		740		579
MAXIMUM	1,118		1,192		933
MINIMUM	158		232		161
ACRE FT	28,826				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

LOCATION.-Lat 69°39'53", Long 144°24'52", in NE1/4NW1/4 sec.36, T.4N., R.31E., 3000 ft. downstream of Sadlerochit Spring, 37.5 mi. southwest of Kaktovik, Alaska.

DRAINAGE AREA.-0.5 mi².

REMARKS.-This a 2nd Order drainage with 2 springs contributing most of the flow.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 108 cfs Aug. 20, 1989; Minimum discharge, 28 cfs Aug. 15, 1988.

JUNE 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	38	1730	40	145	36
19	40	1120	44	415	36
20	38	1440	40	120	34
21	38	1330	40	300	34
22	38	1210	40	325	34
23	40	1735	48	135	36
24	42	950	46	2350	38
25	42	1240	46	305	34
26	42	1005	44	235	40
27	42	1220	44	435	38
28	42	1415	44	210	38
29	42	940	44	2335	38
30	42	1110	48	155	34
TOTAL	526		568		470
AVERAGE	40		44		36
MAXIMUM	42		48		40
MINIMUM	38		40		34
ACRE FT	1,043				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

JULY 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	42	905	46	250	36
2	42	1150	46	225	32
3	42	1050	46	255	34
4	42	920	46	210	34
5	40	1330	44	2325	36
6	42	545	46	25	36
7	42	655	48	15	38
8	40	330	42	1850	36
9	38	825	40	2010	36
10	44	2355	69	5	36
11	50	40	73	2345	40
12	40	405	42	2200	38
13	40	445	42	2000	38
14	40	2335	42	1810	38
15	42	2315	52	1715	38
16	48	2355	52	1135	44
17	52	325	64	2305	44
18	42	1335	44	510	40
19	44	1005	46	45	42
20	46	1530	48	110	44
21	42	30	46	2350	38
22	42	1945	52	825	34
23	50	1835	65	615	38
24	48	1850	56	850	40
25	44	1500	52	640	38
26	48	745	56	1655	42
27	38	35	44	2350	34
28	40	1540	48	705	31
29	46	1330	52	355	32
30	46	1255	52	525	36
31	46	1910	48	730	42
TOTAL	1,348		1,549		1,165
AVERAGE	43		50		38
MAXIMUM	52		73		44
MINIMUM	38		40		31
ACRE FT	2,674				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

AUGUST 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	50	1205	54	20	46
2	46	345	52	2305	42
3	54	1145	69	100	42
4	48	1150	52	615	44
5	46	1215	50	345	44
6	46	1155	50	655	42
7	46	1230	52	1235	40
8	48	1920	58	55	44
9	48	1745	54	2345	44
10	48	1330	52	110	44
11	50	1455	52	2320	46
12	52	315	58	0	48
13	56	2110	71	1215	50
14	60	0	67	2215	56
15	56	550	60	1420	54
16	60	705	64	2000	56
17	58	1105	67	2005	54
18	58	345	64	1945	54
19	58	645	62	2130	56
20	81	1345	108	15	58
21	67	10	77	2000	60
22	62	715	67	1835	58
23	62	700	67	1915	58
24	62	625	65	1835	58
25	64	705	65	2105	60
26	64	255	67	1915	62
27	67	630	73	1830	64
28	67	700	73	1750	64
29	71	635	77	1950	65
30	73	740	79	1645	69
31	81	445	85	10	77
TOTAL	1,809		2,011		1,659
AVERAGE	58		65		54
MAXIMUM	81		108		77
MINIMUM	46		50		40
ACRE FT	3,588				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

SEPTEMBER 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	81	505	83	1805	77
2	81	1035	83	1750	77
3	81	405	83	2130	77
4	79	445	85	1815	77
5	79	330	81	1430	77
6	79	2215	81	1535	77
7	79	915	83	1735	77
8	79	515	83	1650	75
9	79	840	83	1640	77
10	79	2350	87	1730	77
11	81	0	87	1445	79
12	81	900	85	1555	79
13	85	840	89	135	81
14	83	600	87	1825	81
15	81	0	85	2255	79
16	81	825	83	1610	79
17	79	0	83	1715	77
18	79	335	83	1850	77
19	79	1010	81	1710	77
20	79	1105	81	1920	75
21	79	2240	81	1605	75
22	77	230	83	1955	73
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	1,760		1,840		1,700
AVERAGE	80		84		77
MAXIMUM	85		89		81
MINIMUM	77		81		73
ACRE FT	3,491				

ARCTIC NATIONAL WILDLIFE REFUGE

Sikrelurak River

LOCATION.-Lat 69°54'43", Long 142°30'52", in SE1/4SE1/4 sec.36, T.7N., R.38E., at confluence with the West Fork Sikrelurak River, 31 mi. south-east of Kaktovik, Alaska.

DRAINAGE AREA.-74.7 mi².

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 282 cfs Aug. 20 and 21, 1989 ; Minimum discharge, 1.0 cfs July 16, 20, and 21, 1989.

JUNE 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME		MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
		OF MAX DISCH. CU.FT/SEC	DISCH. CU.FT/SEC			
1	- - -	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -	- - -
14	148	5	196	2355	133	
15	125	2120	166	1000	101	
16	109	5	154	1045	92	
17	89	2035	128	1025	68	
18	62	5	107	2350	51	
19	44	5	51	1245	37	
20	39	2255	56	1305	30	
21	42	10	56	1030	34	
22	36	10	52	1105	30	
23	33	2230	49	1235	24	
24	34	15	47	1215	30	
25	27	10	34	1205	24	
26	32	2120	41	1000	26	
27	26	0	37	1200	21	
28	24	5	29	1035	19	
29	19	0	26	1150	16	
30	-	16	5	2355	13	

TOTAL	905	1,250	749
AVERAGE	53	74	44
MAXIMUM	148	196	133
MINIMUM	16	21	13
ACRE FT	1,795		

ARCTIC NATIONAL WILDLIFE REFUGE

Sikreturak River

JULY 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	10	5	14	1245	9
2	9	45	11	2315	6
3	- - -	- - -	- - -	- - -	- - -
4	26	1920	44	900	16
5	26	10	34	840	20
6	26	2210	36	740	21
7	25	0	34	2355	18
8	12	0	18	1155	9
9	10	2235	15	1130	8
10	11	2355	16	1145	7
11	16	1935	19	1220	13
12	9	0	16	1340	6
13	6	2300	10	955	4
14	5	0	10	1200	3
15	6	2325	8	1145	3
16	3	0	7	1255	1
17	6	2045	9	850	6
18	5	5	8	1500	4
19	4	0	7	1635	3
20	2	5	4	2100	1
21	6	2355	12	20	1
22	19	2150	22	10	12
23	20	10	22	1705	19
24	18	0	20	1355	17
25	16	0	18	2340	15
26	39	2210	74	35	15
27	72	220	76	2345	66
28	60	25	68	2355	52
29	45	0	52	2355	41
30	34	0	41	2355	29
31	26	20	29	2355	24
<hr/>					
TOTAL	563		743		443
AVERAGE	19		25		15
MAXIMUM	72		76		66
MINIMUM	2		4		1
ACRE FT	1,117				

ARCTIC NATIONAL WILDLIFE REFUGE

SikreLurak River

AUGUST 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	22	20	24	2350	22
2	20	25	22	2355	19
3	34	2230	68	355	18
4	62	5	66	2340	58
5	51	0	58	2335	45
6	41	5	45	2355	34
7	32	5	34	2335	27
8	26	0	27	2355	24
9	21	0	25	2325	19
10	18	20	20	2320	16
11	15	10	16	2340	13
12	13	5	14	2345	12
13	14	2355	32	1440	12
14	74	2325	94	0	33
15	92	215	94	1135	89
16	89	1810	94	845	85
17	83	0	89	2350	76
18	70	10	78	2345	62
19	56	30	64	2350	52
20	128	2345	282	300	49
21	235	100	282	2350	186
22	151	15	189	2350	122
23	99	15	125	2355	83
24	72	10	85	2130	66
25	74	835	78	20	70
26	66	10	72	2315	62
27	58	125	64	2350	52
28	51	15	54	2310	47
29	49	2315	51	1030	47
30	51	2320	52	800	47
31	60	2320	68	315	51
TOTAL	1,927		2,366		1,598
AVERAGE	62		76		52
MAXIMUM	235		282		186
MINIMUM	13		14		12
ACRE FT	3,822				

ARCTIC NATIONAL WILDLIFE REFUGE

Sikrelurak River

SEPTEMBER 1989

	AVE.DAILY DISCH. DATE	TIME OF MAX DISCH.	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH.	MIN DISCH. CU.FT/SEC
1	64	150	68	2235	58
2	66	2355	97	750	56
3	154	1915	206	20	94
4	176	50	203	2335	148
5	120	0	148	2325	99
6	87	45	101	2350	76
7	70	45	78	2345	60
8	56	25	62	2340	52
9	49	0	52	2245	44
10	42	2355	49	1030	41
11	89	2040	120	0	47
12	107	25	117	2305	97
13	112	2255	145	605	94
14	151	2355	199	555	128
15	157	15	199	2245	125
16	101	115	128	2355	83
17	66	10	83	810	54
18	51	255	70	2345	33
19	36	1330	54	2345	21
20	27	1705	47	2325	12
21	18	1805	33	1225	7
22	12	1735	24	1005	6
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
	TOTAL	1,811	2,283	1,435	
	AVERAGE	82	104	65	
	MAXIMUM	176	206	148	
	MINIMUM	12	24	6	
	ACRE FT	3,592			

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River

LOCATION.-Lat 69°49'58", Long 145°34', in SW1/4NE1/4 sec.35, T.6N., R.26E., 11.8 miles upstream with the confluence of the West Fork, Tamayariak River, 53 miles west-southwest of Kaktovik, Alaska.

DRAINAGE AREA.-136.1 mi², of which 56.8 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 5th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 1,996 cfs Aug. 12, 1988; Minimum discharge, 12 cfs Sept. 26, 1988.

JUNE 1989

DATE	AVE.DAILY	TIME	MAX	TIME	MIN
	DISCH. CU.FT/SEC	OF MAX DISCH.	DISCH. CU.FT/SEC	OF MIN DISCH.	DISCH. CU.FT/SEC
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	481	2355	747	1150	345
18	471	110	753	1705	359
19	431	1640	561	650	336
20	392	2200	594	1225	292
21	431	0	572	1325	373
22	341	5	431	1320	288
23	345	2355	436	905	288
24	378	230	476	1810	318
25	284	0	373	1720	242
26	254	245	292	1355	218
27	226	125	297	1440	188
28	184	145	230	1510	155
29	148	125	195	1930	121
30	114	310	145	2350	89
TOTAL	4,480		6,102		3,612
AVERAGE	320		436		258
MAXIMUM	481		753		373
MINIMUM	114		145		89
ACRE FT	8,886				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River

JULY 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	73	5	89	2355	58
2	53	10	58	1650	47
3	56	2355	76	335	50
4	114	2345	155	0	76
5	124	40	155	1320	104
6	121	130	127	1310	111
7	141	1850	166	1220	127
8	121	100	152	2235	104
9	92	55	104	1925	82
10	95	2355	145	1140	82
11	305	700	436	0	145
12	173	0	250	2350	131
13	114	0	131	2350	104
14	89	5	104	2355	73
15	67	405	73	2330	56
16	127	2355	523	650	56
17	823	815	997	0	523
18	640	0	935	2355	431
19	350	0	436	2320	310
20	288	0	314	2335	263
21	297	2100	364	720	242
22	318	5	354	1530	297
23	354	715	387	2345	310
24	301	715	318	2350	267
25	238	0	271	2215	215
26	461	2335	759	15	215
27	651	400	791	2350	476
28	368	0	476	2350	288
29	234	0	288	2345	195
30	169	10	195	2355	148
31	145	2355	166	825	138
TOTAL	7,502		9,795		5,724
AVERAGE	242		316		185
MAXIMUM	823		997		523
MINIMUM	53		58		47
ACRE FT	14,880				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamatayariak River

AUGUST 1989

	AVE.DAILY DISCH. DATE CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	497	2310	791	10	166
2	628	5	778	2335	534
3	481	10	545	2350	421
4	359	25	421	2315	305
5	271	0	310	2340	242
6	230	0	246	2355	215
7	207	5	215	2340	199
8	192	0	199	2355	180
9	169	20	180	2345	159
10	162	2355	199	835	152
11	297	1600	336	0	203
12	275	30	305	2345	238
13	275	2355	471	225	238
14	645	650	704	0	471
15	634	2355	772	1550	577
16	778	1210	835	2335	698
17	545	5	698	2345	426
18	354	5	431	2350	297
19	259	15	301	2355	230
20	481	2355	888	320	222
21	704	5	888	2355	523
22	411	10	528	2340	327
23	275	15	327	2355	234
24	211	10	238	1825	195
25	199	535	207	2305	188
26	180	10	192	2355	169
27	162	15	173	2300	152
28	145	5	152	2155	145
29	141	250	145	2325	138
30	138	5	141	2335	134
31	177	2145	215	205	134
	TOTAL	10,482	12,831	8,512	
	AVERAGE	338	414	275	
	MAXIMUM	778	888	698	
	MINIMUM	138	141	134	
	ACRE FT	20,791			

ARCTIC NATIONAL WILDLIFE REFUGE

Tamatvariak River

SEPTEMBER 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. DISCH.	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. DISCH.	MIN DISCH. CU.FT/SEC
1	192	5	215	2350	173
2	159	10	173	1555	152
3	148	5	155	2325	141
4	134	5	141	2345	127
5	117	10	127	2340	111
6	127	2350	184	720	108
7	246	1410	267	0	184
8	215	5	246	2350	188
9	169	5	188	2350	155
10	148	5	155	1000	145
11	301	2245	513	20	155
12	426	0	507	2015	382
13	486	1900	605	100	387
14	486	25	566	2340	406
15	336	5	411	2340	288
16	242	0	288	2320	211
17	184	10	211	2355	169
18	148	35	169	2355	138
19	111	5	138	2330	89
20	85	2220	215	815	25
21	155	2025	354	1220	61
22	177	2305	259	950	114
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	4,792		6,087		3,909
AVERAGE	218		277		178
MAXIMUM	486		605		406
MINIMUM	85		127		25
ACRE FT	9,505				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Lower West Fork

LOCATION.-Lat 69°58'48", Long 145°47'40", in NW1/4NW1/4 sec.12, T.7N., R.25E., 1.5 miles upstream from the confluence with the Tamayariak River, 54 miles west-southwest of Kaktovik, Alaska.

DRAINAGE AREA.-98.1 mi², of which 5.5 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 647 cfs Aug. 21, 1989; Minimum discharge, 9 cfs Aug. 6-7, 1988.

JUNE 1989

	AVE.DAILY DISCH. DATE	TIME OF MAX DISCH.	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH.	MIN DISCH. CU.FT/SEC
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	419	2215	608	1325	305
18	314	40	583	2130	212
19	287	1815	371	45	225
20	233	2345	330	1440	190
21	248	115	348	1615	193
22	172	20	265	2035	136
23	159	2355	227	1410	123
24	181	15	235	2015	142
25	119	120	161	2350	90
26	98	630	114	2310	87
27	84	330	107	2355	66
28	.69	800	79	2345	61
29	55	15	61	2355	51
30	47	15	51	2255	42

TOTAL	2,485	3,540	1,923
AVERAGE	178	253	137
MAXIMUM	419	608	305
MINIMUM	47	51	42
ACRE FT	4,929		

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Lower West Fork

JULY 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	40	40	43	2330	38
2	36	35	39	1215	35
3	36	2300	40	1150	32
4	41	1755	47	700	36
5	41	310	44	2355	37
6	39	400	40	2035	36
7	38	1110	41	2355	32
8	30	10	32	2330	27
9	27	20	27	2310	26
10	28	2345	40	735	26
11	32	155	41	2335	26
12	26	15	27	2330	24
13	23	25	24	2340	21
14	22	1255	23	505	21
15	20	0	21	2335	19
16	25	1815	34	740	19
17	43	2340	52	0	31
18	110	1530	207	850	47
19	134	10	172	1920	119
20	129	500	136	2335	117
21	108	15	121	1705	100
22	110	805	117	2350	101
23	98	45	107	2320	88
24	76	35	90	2305	65
25	59	0	66	2300	51
26	121	2355	374	5	54
27	345	330	415	2340	248
28	181	10	265	2355	132
29	101	45	132	2350	78
30	64	5	79	2355	51
31	47	25	51	2020	46
TOTAL	2,230		2,947		1,783
AVERAGE	72		95		58
MAXIMUM	345		415		248
MINIMUM	20		21		19
ACRE FT	4,423				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Lower West Fork

AUGUST 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	198	2025	466	20	49
2	391	30	447	2215	361
3	308	40	378	2350	248
4	205	10	265	2325	163
5	136	115	170	2345	119
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	75	130	82	2325	66
10	62	45	69	1750	57
11	90	2230	134	200	60
12	125	205	136	1910	114
13	134	2210	172	425	107
14	287	1550	374	20	159
15	238	10	308	1600	200
16	285	1900	348	25	220
17	235	10	320	2350	181
18	144	15	186	2350	114
19	96	10	119	2350	79
20	183	2355	630	225	76
21	477	225	647	2340	308
22	217	0	317	2355	157
23	123	5	159	2350	95
24	79	40	96	2340	66
25	61	30	66	2330	57
26	57	10	59	2335	54
27	52	225	56	2335	48
28	47	120	49	2240	43
29	44	1900	46	915	42
30	47	1635	48	250	44
31	72	2355	95	150	46
TOTAL	4,468		6,242		3,333
AVERAGE	160		223		119
MAXIMUM	477		647		361
MINIMUM	44		46		42
ACRE FT	8,862				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamatayariak River, Upper West Fork

JULY 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	9.0	1730	12.1	510	6.2
2	9.3	1750	12.3	620	6.4
3	11.6	1700	15.5	520	7.5
4	13.6	1800	16.0	535	11.0
5	13.4	1715	15.6	525	11.3
6	14.2	1835	16.7	555	12.1
7	12.5	0	14.2	2355	11.3
8	12.2	1710	14.6	505	10.1
9	13.7	1535	16.7	535	10.6
10	14.6	1540	17.7	625	12.9
11	13.4	1910	15.6	605	11.7
12	14.1	1940	16.5	520	11.5
13	15.9	1700	18.4	625	13.6
14	16.4	1545	19.0	620	14.1
15	16.5	1535	18.9	615	14.1
16	13.6	0	16.5	2355	10.9
17	- - -	- - -	- - -	- - -	- - -
18	- - -	- - -	- - -	- - -	- - -
19	- - -	- - -	- - -	- - -	- - -
20	- - -	- - -	- - -	- - -	- - -
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
31	- - -	- - -	- - -	- - -	- - -
TOTAL	214.0		256.3		175.3
AVERAGE	13.4		16.0		11.0
MAXIMUM	16.5		19.0		14.1
MINIMUM	9.0		12.1		6.2

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Upper West Fork

AUGUST 1989

DATE	TEMP DEG. C	TIME OF MAX AVG	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	- - -	- - -	- - -	- - -	- - -
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	12.3	0	13.9	2355	11.1
14	9.9	0	11.1	2355	8.6
15	8.1	1535	8.7	520	7.6
16	7.0	1535	7.7	2355	5.7
17	6.6	1725	9.1	700	4.4
18	9.3	1830	12.2	540	6.1
19	11.6	1705	14.9	640	9.4
20	9.5	0	12.1	2355	7.2
21	8.5	1725	11.1	615	6.2
22	9.2	1625	12.1	620	6.4
23	9.8	1625	13.0	635	6.7
24	10.0	1640	12.0	540	7.6
25	9.4	0	10.2	2355	8.6
26	10.2	1705	13.0	255	8.0
27	10.9	1620	13.4	720	9.2
28	8.9	0	10.1	2355	7.9
29	8.2	1740	9.5	615	7.1
30	7.6	1440	8.2	2355	6.7
31	7.4	1800	9.1	625	5.9
TOTAL	174.4		211.4		140.4
AVERAGE	9.2		11.1		7.4
MAXIMUM	12.3		14.9		11.1
MINIMUM	6.6		7.7		4.4

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Upper West Fork

SEPTEMBER 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	6.9	1605	9.0	740	4.9
2	5.2	0	6.4	920	4.8
3	5.5	1725	6.7	530	4.6
4	7.0	1725	10.0	625	4.6
5	8.5	1600	10.7	700	6.6
6	7.8	0	8.4	2355	6.1
7	6.5	1640	9.4	715	4.0
8	6.7	1715	9.2	620	4.1
9	8.8	1630	10.5	710	7.0
10	9.6	1655	11.2	555	8.4
11	7.9	0	8.9	2355	6.8
12	6.6	1550	7.7	840	5.6
13	5.0	0	6.2	2355	3.3
14	2.1	0	3.3	2355	1.2
15	1.4	1550	2.6	750	0.6
16	1.1	1515	2.1	715	0.3
17	1.0	1600	2.4	625	0.0
18	0.6	1545	1.8	345	0.0
19	0.4	1605	1.6	2100	0.0
20	0.0	1220	0.0	1740	0.0
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	98.6		128.1		72.9
AVERAGE	4.9		6.4		3.6
MAXIMUM	9.6		11.2		8.4
MINIMUM	0.0		0.0		0.0

APPENDIX D

**Addendum, 1988 Stream Discharge Data
for Sadlerochit Spring Creek**

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

LOCATION.-Lat 69°39'53", Long 144°24'52", in NE1/4NW1/4 sec.36, T.4N., R.31E., 3000 ft. downstream of Sadlerochit Spring, 37.5 mi. southwest of Kaktovik, Alaska.

DRAINAGE AREA.-0.5 mi².

REMARKS.-This a 2nd Order drainage with 2 springs contributing most of the flow.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 55 cfs Aug. 16 & 19, 1988; Minimum discharge, 28 cfs Aug. 15, 1988.

JULY 1988

AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.	
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC

1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
6	-	-	-	-	-
7	-	-	-	-	-
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
13	-	-	-	-	-
14	-	-	-	-	-
15	-	-	-	-	-
16	-	-	-	-	-
17	-	-	-	-	-
18	-	-	-	-	-
19	-	-	-	-	-
20	-	-	-	-	-
21	-	-	-	-	-
22	38	1500	38	1030	37
23	38	1115	40	1530	36
24	38	845	40	2315	37
25	38	1345	40	1845	37
26	38	1815	40	1930	37
27	38	845	40	1730	37
28	37	1330	38	1500	36
29	37	945	38	1615	35
30	36	1045	37	1515	35
31	37	1445	38	1645	36

TOTAL	379	389	367
AVERAGE	38	39	37
MAXIMUM	38	40	37
MINIMUM	36	37	35
ACRE FT	753		

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

AUGUST 1988

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	37	1200	38	1545	36
2	38	1145	40	1800	37
3	38	1130	40	1345	37
4	38	930	41	1500	35
5	38	1100	41	1715	36
6	38	1230	41	915	37
7	38	900	40	2045	37
8	38	1200	40	1630	37
9	40	1130	43	2045	38
10	43	815	45	600	42
11	41	1215	43	1815	40
12	40	1100	42	1800	38
13	41	1300	42	1430	40
14	38	1130	42	2030	34
15	40	1200	48	1815	28
16	41	1300	55	1430	30
17	41	1045	51	1515	35
18	42	1430	53	1815	33
19	43	1115	55	1745	30
20	41	1115	50	1815	35
21	41	1430	51	1615	32
22	42	1115	53	1500	33
23	44	915	48	1300	41
24	44	1230	46	500	41
25	44	1800	45	2230	41
26	43	1145	44	2000	42
27	43	945	43	2130	42
28	43	1015	44	2100	42
29	43	900	44	1800	42
30	43	1215	44	1600	42
31	44	915	45	1915	43
TOTAL	1,264		1,391		1,157
AVERAGE	41		45		37
MAXIMUM	44		55		43
MINIMUM	37		38		28
ACRE FT	2,507				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

SEPTEMBER 1988

DATE	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	44	1500	48	1845	43
2	44	1200	50	1345	43
3	44	1115	45	1730	43
4	43	815	44	1430	42
5	43	900	44	1630	42
6	45	2215	48	115	43
7	46	1400	48	1600	45
8	45	1130	46	2100	44
9	44	930	46	2015	43
10	44	945	46	1600	41
11	43	1000	45	1900	42
12	44	930	46	2015	43
13	44	945	46	2345	43
14	44	1015	45	1645	43
15	44	1115	45	1600	43
16	44	1100	45	1945	43
17	44	1045	45	2115	43
18	44	915	45	1715	42
19	43	945	44	1530	42
20	43	1300	44	1430	42
21	43	1400	44	515	43
22	44	945	44	630	43
23	43	1200	44	1845	42
24	42	1115	43	1900	41
25	42	1045	43	2115	41
26	43	1000	44	1945	42
27	42	1130	43	1845	41
28	42	1130	43	1645	42
29	42	1215	43	1600	41
30	42	1100	43	645	41
TOTAL	1,295		1,342		1,261
AVERAGE	43		45		42
MAXIMUM	46		50		45
MINIMUM	42		43		41
ACRE FT	2,568				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

OCTOBER 1988

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	42	1115	44	1800	41
2	42	315	43	1715	41
3	41	1030	42	2030	41
4	41	900	42	330	41
5	41	1215	42	1600	41
6	42	845	42	2200	41
7	41	1000	42	1230	40
8	41	1200	42	230	40
9	41	315	42	1900	40
10	41	1315	42	1915	38
11	40	1030	41	2015	38
12	41	1830	41	2015	40
13	41	715	41	1115	40
14	41	930	42	445	41
15	41	145	42	1715	40
16	41	1045	42	1700	40
17	41	315	42	530	40
18	42	1445	43	45	41
19	41	1315	43	2145	40
20	40	1130	41	245	38
21	41	700	42	845	40
22	41	1245	42	630	40
23	41	2230	42	200	41
24	41	1100	41	330	40
25	40	1200	41	1815	38
26	38	1145	40	2115	37
27	40	1500	41	1830	38
28	40	2315	41	130	40
29	41	1215	41	0	38
30	40	2200	41	715	38
31	40	0	41	200	40
TOTAL	1,252		1,282		1,225
AVERAGE	40		41		40
MAXIMUM	42		44		41
MINIMUM	38		40		37
ACRE FT	2,484				

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

NOVEMBER 1988

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	40	1300	41	2200	40
2	40	2315	42	1545	38
3	38	1230	40	230	37
4	38	1045	40	2330	37
5	38	1530	40	2045	38
6	38	1330	40	900	37
7	38	1245	40	1615	37
8	38	200	38	2045	37
9	38	1345	38	45	37
10	38	1045	40	715	37
11	38	2330	40	615	37
12	38	700	40	2345	37
13	38	2315	40	330	38
14	38	100	40	2230	38
15	38	1930	40	200	38
16	40	2245	41	230	38
17	40	115	41	2345	38
18	38	315	40	1015	37
19	38	2130	40	545	37
20	38	1845	40	1715	37
21	38	845	41	600	38
22	40	745	40	1815	38
23	38	800	40	30	38
24	38	1930	40	615	37
25	38	715	40	2115	37
26	38	1245	40	315	37
27	38	1645	38	0	37
28	38	2145	40	445	37
29	38	330	40	1245	37
30	38	45	40	545	37
TOTAL	1,159		1,189		1,135
AVERAGE	39		40		38
MAXIMUM	40		42		40
MINIMUM	38		38		37
ACRE FT	2,300		2,358		

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

DECEMBER 1988

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. DISCH. CU.FT/SEC	MIN
1	38	2200	40	2330	37
2	38	1815	40	430	37
3	38	2230	38	445	37
4	37	2315	38	1000	36
5	38	830	40	1630	37
6	38	15	40	2215	36
7	37	615	38	330	35
8	36	2315	37	930	35
9	36	2200	38	1345	35
10	38	45	38	2115	37
11	37	1000	38	2330	37
12	37	1800	40	415	36
13	38	130	40	2330	37
14	36	1245	37	2030	35
15	35	2145	36	1700	34
16	36	515	37	1915	35
17	35	730	36	400	35
18	35	1100	37	1845	34
19	35	1945	36	2215	34
20	35	1245	36	245	34
21	36	1045	36	1945	35
22	36	2345	37	1645	35
23	35	15	37	2230	34
24	35	1600	36	815	34
25	35	600	36	1700	34
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
31	- - -	- - -	- - -	- - -	- - -
	TOTAL	920	947	894	
	AVERAGE	37	38	36	
	MAXIMUM	38	40	37	
	MINIMUM	35	36	34	
	ACRE FT	1,824			

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Lower West Fork

SEPTEMBER 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. DISCH.	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. DISCH.	MIN DISCH. CU.FT/SEC
1	105	1655	116	2350	90
2	85	130	93	2220	76
3	82	1955	88	245	76
4	78	40	87	2340	66
5	61	5	69	2345	51
6	49	20	52	2255	47
7	57	2310	72	300	47
8	66	155	72	2305	59
9	54	100	61	2335	47
10	48	2350	62	950	43
11	121	2355	265	0	61
12	235	135	285	2315	193
13	217	2300	296	440	186
14	270	430	302	2330	246
15	205	25	251	2355	168
16	134	40	170	2355	107
17	87	10	110	2330	69
18	59	5	71	2330	48
19	43	5	48	2355	37
20	38	1045	76	2325	23
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	2,094		2,646		1,740
AVERAGE	105		132		87
MAXIMUM	270		302		246
MINIMUM	38		48		23
ACRE FT	4,153				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River

LOCATION.-Lat 69°49'58", Long 145°34', in SW1/4NE1/4 sec.35, T.6N., R.26E., 11.8 miles upstream with the confluence of the West Fork, Tamayariak River, 53 miles west-southwest of Kaktovik, Alaska.

DRAINAGE AREA.-136.1 mi², of which 56.8 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 5th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature, 19.7°C July 15, 1989.

JUNE 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	5.2	1455	9.0	540	2.4
18	4.4	1950	8.4	625	1.3
19	5.4	0	6.8	2355	4.5
20	8.1	1905	13.5	510	3.7
21	8.7	1540	11.4	750	6.7
22	8.2	1850	11.3	725	5.3
23	10.1	1800	13.7	545	6.6
24	10.2	1920	12.0	740	7.8
25	9.3	1915	12.1	1005	6.9
26	11.2	1730	15.5	635	7.6
27	11.6	1805	14.9	600	8.7
28	12.3	1740	15.4	605	9.3
29	11.6	1800	13.6	620	9.6
30	9.8	0	12.3	1110	8.1
TOTAL	126.1		169.9		88.5
AVERAGE	9.0		12.1		6.3
MAXIMUM	12.3		15.5		9.6
MINIMUM	4.4		6.8		1.3

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River

JULY 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	8.8	1815	12.3	655	5.8
2	9.5	1855	13.0	610	6.3
3	12.2	1710	16.6	535	7.7
4	14.5	1815	17.1	550	11.5
5	14.5	1710	16.8	605	12.2
6	15.3	1820	17.4	645	13.1
7	13.1	0	15.6	2355	11.4
8	12.7	1720	15.9	520	9.9
9	14.4	1730	17.9	550	11.0
10	15.2	1535	18.6	630	13.2
11	13.2	1855	15.3	855	11.2
12	14.4	1925	17.7	605	11.5
13	15.9	1845	18.7	630	13.5
14	16.5	1610	19.4	615	14.1
15	16.6	1825	19.7	605	14.1
16	13.1	0	16.6	2355	9.8
17	8.9	1955	10.4	805	7.2
18	10.8	1825	15.1	605	6.6
19	12.0	0	13.3	2355	11.1
20	11.3	1740	14.6	635	9.1
21	9.5	0	11.4	920	7.8
22	10.6	1940	14.0	555	7.8
23	12.8	1845	16.2	630	9.5
24	12.7	1610	15.1	655	10.2
25	12.4	1515	14.5	655	10.4
26	9.1	0	11.4	2355	7.8
27	8.2	1945	10.9	630	5.8
28	10.4	1830	14.8	645	6.1
29	13.0	1840	16.9	620	9.3
30	13.5	1800	16.8	740	10.4
31	13.1	1920	14.4	720	11.9
TOTAL	388.2		478.4		307.3
AVERAGE	12.5		15.4		9.9
MAXIMUM	16.6		19.7		14.1
MINIMUM	8.2		10.4		5.8

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River

AUGUST 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	13.9	1620	16.0	835	12.1
2	11.6	0	13.3	935	10.1
3	11.2	2005	13.5	820	9.4
4	12.9	1855	17.4	640	9.0
5	15.4	1815	18.2	700	12.9
6	16.0	1850	18.9	735	13.5
7	16.0	1730	19.3	725	12.9
8	16.1	1835	19.5	655	12.9
9	16.0	1835	18.5	720	13.2
10	15.4	1505	17.4	830	13.8
11	14.3	1705	16.5	740	12.0
12	15.3	1705	18.8	725	12.5
13	12.5	0	15.1	720	11.3
14	10.2	0	11.3	2355	9.0
15	8.3	0	9.0	740	7.6
16	7.2	1730	7.9	2355	6.3
17	7.3	2045	10.4	715	4.6
18	9.8	2025	13.1	745	6.4
19	11.5	1930	14.3	800	9.6
20	9.6	0	12.6	2355	7.4
21	8.4	1810	11.4	730	6.0
22	8.9	1815	12.3	725	5.8
23	9.5	1830	12.8	750	6.2
24	9.6	1755	11.6	730	7.3
25	9.5	1740	10.7	905	8.6
26	10.1	1955	13.1	605	8.1
27	11.5	1745	13.8	835	9.5
28	9.7	0	11.0	2355	9.0
29	8.8	1855	10.0	845	7.6
30	8.0	0	9.1	2355	7.2
31	7.4	1825	9.1	805	6.0
TOTAL	351.9		425.9		287.8
AVERAGE	11.4		13.7		9.3
MAXIMUM	16.1		19.5		13.8
MINIMUM	7.2		7.9		4.6

ARCTIC NATIONAL WILDLIFE REFUGE

Tamatayariak River

SEPTEMBER 1989

DATE	TEMP DEG. C	TIME OF MAX	TEMP DEG.C	TIME OF MIN	TEMP DEG.C
	Avg	Temp	Max	Temp	Min
1	7.2	1725	9.2	920	4.9
2	5.9	0	7.4	1040	5.3
3	6.2	1845	7.3	725	5.4
4	7.1	1940	9.8	745	4.9
5	8.8	1735	10.9	810	6.9
6	8.0	0	9.2	2355	6.8
7	6.8	1820	9.5	820	4.2
8	6.6	1910	9.1	820	3.9
9	8.9	1840	10.8	810	7.2
10	9.5	1800	11.1	825	8.3
11	8.0	0	9.3	2355	7.0
12	6.7	1930	7.8	840	5.5
13	5.2	0	6.8	2355	3.8
14	2.4	0	3.8	2355	1.8
15	1.9	1750	2.9	850	1.0
16	1.5	1720	2.3	735	0.6
17	1.3	1745	2.5	745	0.2
18	0.8	1710	1.7	505	0.1
19	0.7	1720	1.9	2210	0.1
20	0.1	1430	0.2	1820	0.1
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	103.6		133.5		78.0
AVERAGE	5.2		6.7		3.9
MAXIMUM	9.5		11.1		8.3
MINIMUM	0.1		0.2		0.1

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Lower West Fork

LOCATION.--Lat 69°58'48", Long 145°47'40", in NW1/4NW1/4 sec.12, T.7N., R.25E., 1.5 miles upstream from the confluence with the Tamayariak River, 54 miles west-southwest of Kaktovik, Alaska.

DRAINAGE AREA.--98.1 mi², of which 5.5 mi² is located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.--This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.--Maximum temperature, 16.6°C July 15, 1989.

JUNE 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C. MAX	OF MIN TEMP	DEG.C. MIN
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	5.3	1425	9.4	535	2.4
18	4.7	1735	8.0	600	1.8
19	5.0	0	5.7	2355	4.1
20	6.8	1830	11.7	545	2.5
21	8.3	1510	10.2	2355	6.7
22	6.4	1725	8.7	710	4.6
23	7.5	1810	10.9	615	4.4
24	9.3	1540	11.5	730	7.4
25	8.2	1730	10.7	730	6.4
26	7.9	1755	10.6	600	5.5
27	8.4	1735	11.4	515	5.7
28	9.3	1715	12.2	520	6.5
29	8.8	1725	11.0	550	6.9
30	7.9	1650	9.9	835	6.1
TOTAL	103.8		141.9		71.0
AVERAGE	7.4		10.1		5.1
MAXIMUM	9.3		12.2		7.4
MINIMUM	4.7		5.7		1.8

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Lower West Fork

JULY 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	7.5	1720	10.5	605	5.1
2	7.6	1735	10.5	540	5.0
3	9.2	1620	12.7	505	5.7
4	11.7	1425	14.4	420	8.5
5	12.2	1705	14.9	455	9.9
6	13.1	1755	15.4	445	11.0
7	11.0	0	13.0	2355	9.3
8	9.8	1635	12.1	540	8.0
9	11.2	1555	14.3	535	8.3
10	12.1	1600	15.4	610	9.8
11	11.6	1755	13.4	615	10.0
12	12.0	1645	15.4	525	9.3
13	13.2	1625	16.0	430	11.0
14	13.2	1550	15.9	600	11.0
15	13.7	1625	16.6	515	11.2
16	10.8	0	13.1	2355	9.0
17	9.7	1855	11.5	600	8.3
18	10.8	1655	13.5	435	7.8
19	10.5	1700	12.4	2355	9.2
20	9.3	1700	12.0	645	7.7
21	7.4	0	8.5	2355	6.6
22	7.9	1840	10.4	445	5.8
23	9.8	1620	13.2	530	6.7
24	10.6	1735	13.3	510	8.2
25	10.4	1345	12.7	655	8.8
26	8.3	0	9.2	2355	7.3
27	8.1	1815	10.1	550	6.4
28	9.4	1730	12.9	600	6.2
29	10.4	1650	13.5	605	7.8
30	9.8	1710	12.2	610	7.9
31	8.9	1825	9.8	555	8.2
TOTAL	321.2		398.8		255.0
AVERAGE	10.4		12.9		8.2
MAXIMUM	13.7		16.6		11.2
MINIMUM	7.4		8.5		5.0

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Lower West Fork

AUGUST 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	10.6	1615	13.9	835	8.2
2	10.1	1820	11.1	730	9.2
3	9.9	1815	12.1	805	8.6
4	11.1	1805	14.5	555	7.9
5	12.8	1820	15.0	630	11.3
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	12.6	1445	14.9	635	10.3
10	12.5	1620	14.5	2355	11.3
11	11.8	1720	13.8	800	10.2
12	12.7	1710	15.6	700	10.5
13	10.9	1330	12.1	610	9.8
14	9.9	1625	10.9	2355	9.2
15	8.8	1615	9.5	2355	8.2
16	7.9	1735	8.9	2355	6.7
17	6.2	1835	6.9	755	5.2
18	7.9	1630	10.1	620	6.0
19	8.8	1845	11.4	555	7.1
20	8.3	0	9.3	2355	7.6
21	8.7	1745	11.1	650	6.9
22	8.8	1635	11.4	640	6.5
23	8.7	1630	11.3	700	6.6
24	8.7	1630	10.8	620	6.6
25	8.2	1410	9.5	2355	7.0
26	8.1	1755	10.5	535	6.7
27	8.8	1655	11.0	655	7.3
28	6.7	0	7.6	2355	6.0
29	6.3	1600	7.2	505	5.6
30	5.9	1455	6.6	2355	5.4
31	5.8	1605	6.8	720	4.9
TOTAL	257.5		308.3		216.8
AVERAGE	9.2		11.0		7.7
MAXIMUM	12.8		15.6		11.3
MINIMUM	5.8		6.6		4.9

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Lower West Fork

SEPTEMBER 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	6.0	1615	7.7	745	4.9
2	4.4	0	5.1	735	4.0
3	4.7	1710	5.7	440	4.0
4	5.5	1700	7.6	655	4.2
5	6.2	1535	8.3	740	4.8
6	6.0	1445	7.0	630	5.0
7	5.8	1625	8.0	800	4.3
8	5.4	1740	7.3	710	3.6
9	6.7	1705	8.3	725	5.5
10	7.3	1515	9.1	40	6.4
11	6.2	1630	6.7	2355	5.8
12	5.9	1550	6.7	745	5.3
13	5.4	1455	5.9	2355	4.5
14	3.6	0	4.4	2355	3.1
15	2.7	0	3.1	2355	2.4
16	2.1	1620	2.6	2245	1.6
17	2.1	1600	3.2	745	1.5
18	1.5	1525	2.1	330	0.9
19	1.3	1605	2.2	2355	0.2
20	0.3	1550	1.4	210	-0.1
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	89.1		112.4		71.9
AVERAGE	4.5		5.6		3.6
MAXIMUM	7.3		9.1		6.4
MINIMUM	0.3		1.4		-0.1

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Middle Fork

LOCATION.-Lat 69°58'33", Long 145°46'44", in center sec.12, T.7N., R.25E., 0.4 mile upstream from the confluence with the West Fork, Tamayariak River, 54 miles west-southwest of Kaktovik, Alaska.

DRAINAGE AREA.- 61.3 mi^2 , of which 0.8 mi^2 is located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature, 17.9°C July 15, 1989.

JUNE 1989

DATE	TEMP DEG. C	TIME OF MAX	TEMP DEG.C	TIME OF MIN	TEMP DEG.C
	AVG	MAXT	MAX	TEMP	MIN
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	- - -	- - -	- - -	- - -	- - -
19	- - -	- - -	- - -	- - -	- - -
20	- - -	- - -	- - -	- - -	- - -
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	9.1	1746	11.3	646	6.9
30	8.2	1836	10.3	946	6.2

TOTAL	17.3	21.6	13.1
AVERAGE	8.7	10.8	6.6
MAXIMUM	9.1	11.3	6.9
MINIMUM	8.2	10.3	6.2

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Middle Fork

JULY 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	8.0	1756	11.3	641	5.3
2	8.3	1851	11.4	626	5.5
3	10.3	1706	14.2	601	6.4
4	13.0	1736	15.9	526	9.9
5	13.1	1711	15.6	546	10.6
6	13.7	1931	16.1	601	11.4
7	11.2	1	14.1	2356	9.3
8	9.9	1636	12.3	701	7.7
9	11.9	1806	15.6	551	8.5
10	13.4	1611	16.8	621	10.8
11	12.4	1826	14.4	631	10.7
12	13.0	1731	16.2	541	10.2
13	14.5	1651	17.5	641	12.1
14	14.6	1621	17.3	626	12.2
15	15.0	1726	17.9	606	12.4
16	11.7	1	15.2	2356	9.6
17	9.6	1831	10.8	901	8.5
18	11.3	1846	14.7	606	8.0
19	11.8	1711	13.4	2356	10.7
20	10.4	1726	12.9	716	8.6
21	8.2	1	9.9	921	7.3
22	8.7	1921	11.7	631	6.3
23	11.2	1606	14.7	616	7.8
24	11.9	1836	14.6	651	9.7
25	11.4	1441	13.7	711	9.6
26	8.7	1	10.3	2356	8.0
27	8.3	1931	10.4	701	6.3
28	10.1	1811	13.9	656	6.6
29	11.4	1751	14.6	646	8.6
30	10.8	1801	13.3	821	8.6
31	9.7	1	10.8	756	8.8
TOTAL	347.5		431.5		276.0
AVERAGE	11.2		13.9		8.9
MAXIMUM	15.0		17.9		12.4
MINIMUM	8.0		9.9		5.3

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Middle Fork

AUGUST 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	11.8	1821	15.5	736	8.9
2	11.0	1	13.1	1006	9.9
3	10.2	1926	12.3	921	8.8
4	11.6	1846	15.4	646	8.2
5	14.0	1826	16.3	646	12.1
6	14.2	1836	16.6	726	12.0
7	13.3	1706	15.5	711	11.3
8	13.1	1821	16.6	716	10.1
9	13.5	1851	15.9	726	10.8
10	13.3	1636	15.3	731	11.9
11	12.3	1841	14.3	616	10.2
12	13.9	1711	17.0	721	11.6
13	11.7	1	13.7	711	10.4
14	10.1	1636	11.0	2356	9.4
15	8.6	1	9.3	746	8.0
16	7.6	1811	8.7	2356	6.7
17	5.8	1956	6.9	831	4.6
18	8.0	1751	10.5	701	5.9
19	9.2	1921	12.0	751	7.3
20	8.6	1	10.3	2356	7.6
21	8.4	1831	11.1	726	6.3
22	8.8	1746	11.5	731	6.4
23	8.8	1731	11.5	736	6.3
24	8.8	1751	10.8	706	6.4
25	8.5	1531	9.7	2356	7.5
26	8.3	1916	10.8	716	6.6
27	9.3	1741	11.8	826	7.5
28	7.0	1	8.7	2356	6.1
29	6.3	1756	7.2	731	5.5
30	5.9	1506	6.4	841	5.4
31	5.8	1911	6.9	756	4.7
TOTAL	307.7		372.6		254.4
AVERAGE	9.9		12.0		8.2
MAXIMUM	14.2		17.0		12.1
MINIMUM	5.8		6.4		4.6

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Middle Fork

LOCATION.-Lat 69°58'33", Long 145°46'44", in center sec.12, T.7N., R.25E., 0.4 mile upstream from the confluence with the West Fork, Tamayariak River, 54 miles west-southwest of Kaktovik, Alaska.

DRAINAGE AREA.-61.3 mi², of which 0.8 mi² is located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 617.5 cfs Sept. 5, 1988; Minimum discharge, 1.2 cfs Aug. 6–7, 1988.

JUNE 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME	MAX	TIME	MIN
		OF MAX	DISCH.	OF MIN	DISCH.
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	- - -	- - -	- - -	- - -	- - -
19	- - -	- - -	- - -	- - -	- - -
20	- - -	- - -	- - -	- - -	- - -
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	34	21	46	1551	29
30	26	26	30	1806	24

TOTAL	60	76	53
AVERAGE	30	38	27
MAXIMUM	34	46	29
MINIMUM	26	30	24
ACRE FT	119		

ARCTIC NATIONAL WILDLIFE REFUGE

Tamatayariak River, Middle Fork

JULY 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	20	1	25	1736	18
2	19	411	22	516	17
3	20	2346	23	1746	16
4	29	2056	40	606	23
5	36	326	42	1226	30
6	36	2356	46	1431	33
7	34	36	46	2346	26
8	21	11	26	1731	17
9	18	2356	23	1141	16
10	23	2256	36	1446	18
11	27	6	36	1621	23
12	19	26	26	1916	16
13	18	441	20	1626	15
14	17	141	20	1711	15
15	14	111	17	1621	12
16	15	2351	18	911	13
17	124	2301	233	26	18
18	196	26	231	2356	143
19	118	1	143	1236	110
20	106	1	114	2356	96
21	98	2321	122	821	83
22	114	21	122	1621	108
23	104	2326	131	1731	92
24	108	31	131	2351	90
25	76	1	90	2331	65
26	198	2326	287	1	65
27	255	111	287	2356	196
28	141	6	194	2356	100
29	77	1	100	2356	60
30	48	1	60	2356	40
31	39	301	45	1016	38
TOTAL	2,168		2,756		1,612
AVERAGE	70		89		52
MAXIMUM	255		287		196
MINIMUM	14		17		12
ACRE FT	4,300				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamatayariak River, Middle Fork

AUGUST 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	242	1401	301	1	45
2	255	11	286	2351	235
3	212	1	235	2341	187
4	162	11	189	2341	135
5	108	1	135	2356	89
6	77	6	89	2351	70
7	70	206	76	701	65
8	70	21	74	711	63
9	60	31	70	2341	55
10	52	401	60	1816	51
11	160	1551	200	6	55
12	152	6	181	2356	120
13	116	2356	145	1636	112
14	214	1356	233	1	147
15	179	16	204	1526	169
16	214	1706	244	341	169
17	175	1	225	2356	137
18	112	1	139	2346	92
19	81	21	98	2221	72
20	220	2031	298	306	63
21	282	6	303	2356	214
22	158	1	212	2351	118
23	90	6	116	2356	72
24	62	6	72	2351	55
25	52	1	55	2356	49
26	51	1731	52	941	49
27	48	6	51	2351	45
28	43	1	45	1106	42
29	48	2316	51	1	43
30	51	2051	52	101	51
31	112	1831	169	226	52
TOTAL	3,928		4,660		2,921
AVERAGE	127		150		94
MAXIMUM	282		303		235
MINIMUM	43		45		42
ACRE FT	7,791				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Middle Fork

SEPTEMBER 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	124	6	156	2356	98
2	85	6	96	1606	81
3	98	1441	102	16	87
4	81	11	96	2356	70
5	60	1	70	2356	52
6	51	2341	55	706	48
7	62	1756	65	16	55
8	57	21	63	2341	52
9	49	31	54	2331	46
10	48	2356	63	756	43
11	143	1826	181	1	65
12	162	1	179	2311	150
13	171	2246	200	531	147
14	214	2356	242	346	198
15	198	41	242	2356	156
16	118	1	158	2351	90
17	70	16	92	2351	60
18	48	1	60	2336	40
19	33	1	40	2356	28
20	45	1031	98	2026	23
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	1,917		2,312		1,589
AVERAGE	96		116		79
MAXIMUM	214		242		198
MINIMUM	33		40		23
ACRE FT	3,802				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Upper West Fork

LOCATION.-Lat 69°49'54", Long 145°55'20", in center W1/2W1/2 sec.33, T.6N., R.25E., 13.9 miles upstream with the confluence with the Tamayariak River, 61.1 miles west-southwest of Kaktovik, Alaska.

DRAINAGE AREA.-49.2 mi², of which 5.6 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREMES FOR PERIOD OF RECORD.-Maximum discharge, 1,478 cfs Aug. 20, 1989; Minimum discharge, 0 cfs July 9, 10, and 13, 1989.

JUNE 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC

1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	- - -	- - -	- - -	- - -	- - -
19	327	1220	565	520	206
20	206	2200	434	1205	119
21	185	0	343	1100	123
22	101	1955	149	1230	70
23	101	1840	176	835	61
24	86	35	126	2355	72
25	51	0	72	1445	43
26	45	10	55	1200	39
27	38	0	43	1220	35
28	35	0	39	1240	33
29	30	0	35	1505	27
30	24	10	29	1950	21

TOTAL	1,229	2,066	849
AVERAGE	102	172	71
MAXIMUM	327	565	206
MINIMUM	24	29	21
ACRE FT	2,438		

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Upper West Fork

JULY 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC

1	17	45	22	1640	11
2	14	115	18	1430	8
3	15	2350	22	1310	10
4	25	1820	30	750	19
5	21	0	27	850	18
6	21	2115	24	210	19
7	21	0	23	2355	17
8	11	5	17	2340	7
9	3	0	7	1340.0	0
10	7	2235	22	340	0
11	20	1715	24	650	17
12	12	0	21	1735	7
13	3	0	7	2355	0
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	- - -	- - -	- - -	- - -	- - -
19	- - -	- - -	- - -	- - -	- - -
20	- - -	- - -	- - -	- - -	- - -
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
31	- - -	- - -	- - -	- - -	- - -

	TOTAL	190	264	133
AVERAGE	15	20	10	
MAXIMUM	25	30	19	
MINIMUM	3	7	0	
ACRE FT	377			

ARCTIC NATIONAL WILDLIFE REFUGE

Tamatayariak River, Upper West Fork

AUGUST 1989

	AVE.DAILY DISCH.	TIME OF MAX DISCH.	MAX DISCH.	TIME OF MIN DISCH.	MIN DISCH.
DATE	CU.FT/SEC	DISCH.	CU.FT/SEC	DISCH.	CU.FT/SEC
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	123	2345	319	20	70
14	486	820	723	2340	304
15	248	10	311	1015	196
16	424	1455	553	0	289
17	180	35	335	2335	107
18	74	20	110	2345	56
19	49	10	57	2350	44
20	319	1955	1,478	145	43
21	530	15	1,253	2355	212
22	116	0	212	2350	70
23	55	0	70	2350	46
24	42	0	46	1820	41
25	41	115	41	1755	41
26	40	1610	42	2325	40
27	39	10	40	2355	38
28	37	20	38	1550	37
29	37	2300	38	10	37
30	37	15	38	1540	37
31	43	2155	55	45	37
TOTAL	2,920		5,759		1,745
AVERAGE	154		303		92
MAXIMUM	530		1,478		304
MINIMUM	37		38		37
ACRE FT	5,792				

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Upper West Fork

SEPTEMBER 1989

DATE	AVE.DAILY DISCH. CU.FT/SEC	TIME OF MAX DISCH. CU.FT/SEC	MAX DISCH. CU.FT/SEC	TIME OF MIN DISCH. CU.FT/SEC	MIN DISCH. CU.FT/SEC
1	48	0	53	2335	44
2	42	45	44	1310	41
3	44	830	45	2350	43
4	41	5	43	2345	39
5	37	15	39	2355	36
6	37	2355	41	530	35
7	44	1445	47	0	41
8	40	20	44	2350	39
9	37	10	39	2320	36
10	36	2355	41	725	35
11	149	1815	343	0	41
12	171	5	282	2035	130
13	242	1530	396	145	133
14	191	20	304	2335	113
15	74	0	116	2350	56
16	45	10	56	2355	39
17	37	0	39	2335	36
18	34	5	36	620	31
19	30	1600	34	2355	16
20	27	1545	37	1135	2
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	1,406		2,079		986
AVERAGE	70		104		49
MAXIMUM	242		396		133
MINIMUM	27		34		2
ACRE FT	2,789				

APPENDIX C

Surface Water Temperature Records

(Listed Alphabetically)

Note:

TIME OF MAX and TIME OF MIN is military time, e.g. 0 is midnight, 40 is 0040 hours, 615 is 0615 hours, etc.

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Middle Fork

SEPTEMBER 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	0.0				
1	6.2	1711	7.7	901	5.0
2	4.5	1	5.5	921	4.0
3	4.6	1911	5.7	726	3.8
4	5.7	1801	7.8	756	4.1
5	6.7	1736	8.7	811	5.1
6	6.5	1656	7.4	711	5.4
7	6.0	1726	8.3	841	4.1
8	5.5	1851	7.5	736	3.4
9	7.2	1746	8.9	801	5.9
10	8.0	1616	9.6	806	7.0
11	6.8	1	7.5	2356	6.0
12	5.8	1741	6.7	911	5.1
13	5.2	1	5.9	2356	4.3
14	2.9	1	4.2	2356	2.1
15	1.7	1	2.1	916	1.3
16	1.4	1701	2.1	846	0.8
17	1.6	1641	2.8	731	0.8
18	1.1	1736	1.8	741	0.4
19	1.0	1706	1.9	2356	0.3
20	0.2	1726	0.6	2056	-0.1
21	0.0	1046	0.1	1916	0.0
22	0.0	1051	0.1	2016	0.0
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	88.6		112.9		68.8
AVERAGE	4.0		5.1		3.1
MAXIMUM	8.0		9.6		7.0
MINIMUM	0.0		0.1		-0.1

ARCTIC NATIONAL WILDLIFE REFUGE

Tamayariak River, Upper West Fork

LOCATION.-Lat 69°49'54", Long 145°55'20", in center W1/2W1/2 S.33, T.6N., R.25E., 13.9 miles upstream with the confluence with the Tamayariak River, 61.1 miles west-southwest of Kaktovik, Alaska.

DRAINAGE AREA.-49.2 mi², of which 5.6 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature, 19.0°C July 14, 1989.

JUNE 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	- - -	- - -	- - -	- - -	- - -
19	4.3	0	5.7	1515	3.5
20	6.9	1650	11.5	450	3.0
21	7.6	1440	10.1	605	6.1
22	7.4	1725	10.6	615	4.6
23	8.5	1625	11.4	555	5.5
24	9.7	1510	12.6	650	7.2
25	9.2	1755	12.3	800	7.0
26	10.5	1710	14.3	610	7.1
27	11.2	1735	14.6	655	8.0
28	11.8	1655	14.9	600	8.7
29	11.2	1745	13.4	550	9.0
30	9.8	1735	11.5	1005	8.1
TOTAL	108.1		142.9		77.8
AVERAGE	9.0		11.9		6.5
MAXIMUM	11.8		14.9		9.0
MINIMUM	4.3		5.7		3.0

ARCTIC NATIONAL WILDLIFE REFUGE

Akutoktak River

LOCATION.-Lat 60°49'56", Long 143°46'50", in center sec.36, T.6N., R.33E., 0.6 mile upstream from confluence with the Okpilak River, 20.8 miles south-southwest of Kaktovik, Alaska.

DRAINAGE AREA.-97.1 mi², of which 66 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature, 19.1°C July 21, 1989.

JUNE 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C	OF MAX	DEG.C	OF MIN	DEG.C
	Avg	Temp	Max	Temp	Min
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	5.8	1715	9.3	530	2.4
16	6.4	0	7.6	1325	5.7
17	7.2	1435	11.3	530	4.6
18	6.2	1915	9.2	555	3.8
19	5.9	0	7.1	2355	5.2
20	7.5	1935	12.1	620	3.6
21	10.5	1400	12.5	515	9.0
22	9.9	1855	12.8	645	7.3
23	11.3	1550	14.3	555	8.5
24	11.8	1915	13.3	735	10.5
25	11.5	1805	14.5	720	9.1
26	11.5	1930	14.5	625	8.5
27	11.7	1815	14.3	705	9.6
28	11.9	1850	14.9	605	9.4
29	12.0	1830	14.0	700	10.3
30	10.3	5	12.4	1100	8.6
TOTAL	151.4		194.1		116.1
AVERAGE	9.5		12.1		7.3
MAXIMUM	12.0		14.9		10.5
MINIMUM	5.8		7.1		2.4

ARCTIC NATIONAL WILDLIFE REFUGE

Akutoktak River

JULY 1989

DATE	TEMP DEG. C	TIME OF MAX AVG	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
1	9.8	1910	12.6	705	7.5
2	9.4	2030	11.2	645	7.7
3	11.4	1730	15.5	525	7.8
4	13.8	1535	17.0	540	11.1
5	13.4	1450	15.2	535	11.4
6	14.4	1620	17.5	515	11.9
7	12.6	0	14.3	2355	11.4
8	12.7	1700	15.8	635	10.1
9	14.2	1725	17.4	615	11.0
10	14.8	1715	18.2	630	12.6
11	13.7	1845	15.6	615	12.2
12	14.5	1600	16.5	540	12.5
13	15.3	1810	18.0	610	13.0
14	16.0	1730	19.1	605	13.5
15	15.8	1755	17.9	605	13.7
16	12.4	0	15.3	2355	9.9
17	10.0	1755	11.0	800	8.8
18	11.5	1825	14.8	525	8.2
19	12.2	0	13.3	2355	11.2
20	11.6	1700	13.8	610	9.9
21	9.4	0	11.3	2355	8.0
22	9.0	2120	11.2	535	7.3
23	11.9	1535	14.7	545	9.4
24	11.4	1805	12.7	540	9.8
25	12.1	1545	14.3	610	10.5
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
31	- - -	- - -	- - -	- - -	- - -

TOTAL	313.3	374.2	260.4
AVERAGE	12.5	15.0	10.4
MAXIMUM	16.0	19.1	13.7
MINIMUM	9.0	11.0	7.3

ARCTIC NATIONAL WILDLIFE REFUGE

Akutoktak River

AUGUST 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	13.3	0	14.8	2355	12.0
14	10.4	0	11.9	2355	9.2
15	8.6	0	9.2	705	8.0
16	8.0	1615	8.8	2355	7.2
17	6.5	2020	7.7	805	5.5
18	9.5	1855	12.6	625	6.7
19	11.4	1825	13.1	755	9.9
20	9.7	0	12.2	2355	7.8
21	- - -	- - -	- - -	- - -	- - -
22	- - -	- - -	- - -	- - -	- - -
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
31	- - -	- - -	- - -	- - -	- - -
TOTAL	77.4		90.3		66.3
AVERAGE	9.7		11.3		8.3
MAXIMUM	13.3		14.8		12.0
MINIMUM	6.5		7.7		5.5

ARCTIC NATIONAL WILDLIFE REFUGE

Itkilyariak Creek, West Fork

LOCATION.-Lat 69°50'19", Long 144°24'43", in NE1/4NW1/4NW1/4 sec.33, T.6N., R.31E., 0.6 mi. upstream from the confluence with the Itkilyariak Creek, 28 miles southwest of Kaktovik, Alaska.

DRAINAGE AREA.-26.9 mi², of which 8.7 mi² are located within the Arctic National Wildlife Refuge Wilderness area.

REMARKS.-This is a 3rd Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature, 17.7°C Aug. 8, 1989.

JUNE 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP MAX	TIME OF MIN TEMP	TEMP MIN
	Avg				
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	5.1	1645	9.0	630	1.3
16	4.8	1900	6.0	625	3.6
17	5.8	1415	10.2	515	2.8
18	4.4	1910	7.3	615	2.2
19	4.8	1005	5.5	2355	4.2
20	7.1	1755	11.5	625	2.8
21	9.9	1435	12.2	530	8.3
22	8.9	1815	11.5	715	6.5
23	10.2	1635	13.5	555	7.1
24	11.0	1800	12.7	540	9.7
25	10.5	1715	13.2	730	8.2
26	11.2	1740	14.2	615	8.2
27	11.0	1715	12.9	600	9.1
28	11.0	1710	13.5	505	8.8
29	10.9	1915	12.7	530	9.4
30	9.3	0	11.0	1005	7.9

TOTAL	135.9	176.9	100.1
AVERAGE	8.5	11.1	6.3
MAXIMUM	11.2	14.2	9.7
MINIMUM	4.4	5.5	1.3

ARCTIC NATIONAL WILDLIFE REFUGE

Itkilyariak Creek, West Fork

JULY 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	8.6	1750	11.1	655	6.5
2	8.6	1855	11.0	655	6.5
3	10.4	1800	13.9	555	7.1
4	12.0	1715	14.5	630	9.6
5	11.7	1520	13.4	530	9.8
6	12.6	1500	14.7	755	10.6
7	11.6	0	12.9	2355	10.4
8	11.3	1625	13.9	540	9.3
9	12.5	1735	15.3	555	9.8
10	12.8	1620	15.6	635	11.1
11	12.8	1815	14.8	655	11.1
12	13.3	1750	15.3	530	11.4
13	14.2	1855	16.4	520	12.1
14	14.4	1540	17.1	610	12.2
15	14.3	1720	15.9	540	12.6
16	11.7	0	13.9	2355	9.8
17	9.1	1720	10.8	845	7.3
18	11.1	1750	14.5	520	7.8
19	11.9	1145	13.0	2355	10.7
20	11.5	1600	13.7	615	9.6
21	9.5	0	10.8	2355	8.2
22	9.7	1820	12.4	505	7.2
23	11.6	1425	14.6	520	9.0
24	11.8	1605	14.0	525	9.8
25	11.7	1430	14.2	630	10.2
26	8.6	0	10.7	2355	7.2
27	7.6	1950	10.0	655	5.4
28	9.8	1750	13.3	610	6.4
29	11.8	1715	15.0	530	8.7
30	12.2	1725	15.0	605	9.7
31	11.0	1930	11.7	555	10.5
TOTAL	351.7		423.4		287.6
AVERAGE	11.3		13.7		9.3
MAXIMUM	14.4		17.1		12.6
MINIMUM	7.6		10.0		5.4

ARCTIC NATIONAL WILDLIFE REFUGE

Itkilyariak Creek, West Fork

AUGUST 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	12.4	1635	15.0	510	10.4
2	11.1	0	12.5	2355	10.1
3	10.0	1855	11.7	1055	8.8
4	11.6	1830	15.1	615	8.2
5	13.9	1715	16.5	655	11.7
6	14.3	1800	16.6	725	12.3
7	14.3	1700	17.2	615	11.7
8	14.8	1655	17.7	550	12.0
9	14.8	1740	16.9	620	12.6
10	13.8	1610	15.6	620	12.5
11	13.5	1650	15.3	635	11.6
12	14.2	135	17.1	545	12.1
13	12.0	0	13.4	2355	10.0
14	9.5	1620	10.4	655	8.6
15	8.3	0	8.9	715	7.6
16	7.6	1550	8.2	2355	6.6
17	6.3	2025	7.7	740	4.8
18	8.7	1720	11.6	645	5.8
19	10.2	1820	12.0	735	8.7
20	8.6	0	10.7	2355	6.8
21	7.6	1800	10.3	705	5.4
22	8.5	1750	11.3	705	6.0
23	8.8	1705	11.4	715	6.2
24	9.0	1620	10.6	630	7.1
25	9.3	1630	10.9	2355	8.1
26	8.7	1855	10.6	600	7.3
27	10.2	1655	12.3	810	8.6
28	8.6	0	9.5	2355	7.8
29	8.2	1705	9.9	730	7.1
30	7.2	0	8.0	2355	6.5
31	6.6	1630	7.7	730	5.5
TOTAL	322.6		382.6		268.5
AVERAGE	10.4		12.3		8.7
MAXIMUM	14.8		17.7		12.6
MINIMUM	6.3		7.7		4.8

ARCTIC NATIONAL WILDLIFE REFUGE

Itkilyariak Creek, West Fork

SEPTEMBER 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	7.0	1715	9.2	755	5.5
2	6.0	0	6.7	855	5.3
3	5.8	1755	6.3	710	5.5
4	6.4	1405	8.3	740	4.5
5	7.3	1555	8.8	745	6.0
6	6.8	1810	7.3	725	6.0
7	6.4	1655	8.5	650	4.6
8	6.1	1740	8.2	725	4.0
9	7.7	1705	9.2	815	6.4
10	8.3	1535	9.6	2355	7.6
11	7.0	0	7.5	2355	6.3
12	6.2	1620	7.1	835	5.4
13	5.2	0	6.2	2355	4.0
14	2.7	0	4.0	2355	1.9
15	1.9	1640	2.9	840	1.1
16	1.5	1705	2.3	805	0.9
17	1.6	1605	2.9	635	0.8
18	0.9	1555	2.0	610	0.0
19	0.8	1555	2.0	2355	0.1
20	0.6	1545	1.6	2055	0.0
21	0.2	1430	0.5	1955	0.0
22	0.2	1440	0.5	0	0.1
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	96.6		121.6		76.0
AVERAGE	4.4		5.5		3.5
MAXIMUM	8.3		9.6		7.6
MINIMUM	0.2		0.5		0.0

ARCTIC NATIONAL WILDLIFE REFUGE

Niguanak River

LOCATION.-Lat 70°35', Long 143°1'54", in NW1/4NW1/4NE1/4 sec.36, T.8N., R.36E., 6 mi. upstream from the mouth, 16.5 mi. south-east of Kaktovik, Alaska.

DRAINAGE AREA.-136.2 mi².

REMARKS.-This is a 5th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature; 23.1°C Aug. 9, 1989.

JUNE 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX MAXT	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	2.4	1730	4.0	615	1.0
15	3.4	1650	5.8	550	0.9
16	3.2	1810	4.3	620	2.3
17	4.5	1540	8.4	540	1.8
18	4.0	1945	7.2	700	1.4
19	3.9	0	5.0	815	3.1
20	4.8	1955	8.5	710	1.8
21	7.2	1625	9.4	600	4.8
22	7.3	1845	10.2	700	4.6
23	9.2	1845	13.0	750	5.9
24	10.3	2005	12.2	755	8.1
25	9.7	1820	12.8	720	7.0
26	9.4	1915	12.4	655	6.6
27	10.0	1900	13.2	750	7.3
28	11.4	1910	15.0	700	8.1
29	12.3	1940	15.0	710	9.6
30	11.2	0	13.8	1035	8.5
TOTAL	124.2		170.2		82.8
AVERAGE	7.3		10.0		4.9
MAXIMUM	12.3		15.0		9.6
MINIMUM	2.4		4.0		0.9

ARCTIC NATIONAL WILDLIFE REFUGE

Niguanak River

JULY 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	11.1	1900	14.5	730	7.9
2	10.7	0	12.9	900	9.8
3	12.6	2005	17.3	640	8.5
4	16.3	1750	19.1	650	13.3
5	16.2	1530	18.0	555	13.8
6	17.4	1835	20.5	655	14.6
7	15.8	0	19.1	2355	13.6
8	14.7	1925	18.3	715	11.6
9	17.4	1900	20.7	805	14.5
10	18.6	1750	21.7	830	16.0
11	17.9	1915	20.1	755	16.0
12	18.3	1840	20.6	705	15.9
13	19.4	1820	22.2	800	16.6
14	20.2	1940	22.9	745	17.6
15	20.2	1930	22.2	710	17.6
16	16.5	0	21.0	2355	12.7
17	13.9	2045	16.4	650	11.6
18	16.5	1935	20.1	710	13.0
19	17.6	1350	19.9	2355	16.2
20	15.5	1840	17.6	920	13.5
21	13.0	0	16.0	2355	11.2
22	12.4	2015	15.6	705	10.2
23	16.2	1705	19.9	625	12.8
24	16.7	1845	18.6	805	15.0
25	17.6	1730	20.8	700	15.0
26	14.3	0	17.3	2355	13.0
27	13.4	1750	16.1	815	11.0
28	15.1	1800	17.8	720	12.4
29	16.8	1920	20.5	640	13.5
30	17.1	1810	19.5	750	14.6
31	15.8	0	17.2	950	14.8
TOTAL	495.2		584.4		417.8
AVERAGE	16.0		18.9		13.5
MAXIMUM	20.2		22.9		17.6
MINIMUM	10.7		12.9		7.9

ARCTIC NATIONAL WILDLIFE REFUGE

Niguanak River

AUGUST 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C	OF MAX	DEG.C	OF MIN	DEG.C
	Avg	Temp	Max	Temp	Min
1	16.2	1805	18.5	805	14.8
2	14.8	0	17.1	1100	14.1
3	13.9	2020	16.1	1010	12.3
4	16.0	1945	19.7	630	12.8
5	19.2	1845	22.6	750	16.6
6	20.2	1700	22.4	745	18.0
7	18.3	1750	20.0	740	16.5
8	18.5	1925	22.0	715	15.4
9	19.6	1620	23.1	740	16.7
10	18.7	1705	20.6	725	16.6
11	18.1	1730	20.5	820	15.8
12	18.5	1845	21.2	800	16.1
13	16.8	0	18.6	2355	15.7
14	15.1	1435	15.8	2355	14.3
15	13.3	0	14.3	905	12.7
16	12.4	1815	13.4	910	11.5
17	10.3	0	11.6	950	9.1
18	12.4	1920	15.5	650	9.9
19	15.2	2030	17.2	740	13.4
20	13.6	0	16.7	2355	11.8
21	12.3	1935	14.6	750	10.6
22	13.2	1900	15.6	755	10.9
23	13.4	1900	15.7	820	11.2
24	13.9	1820	15.7	755	11.6
25	14.4	1610	15.3	2355	12.9
26	13.1	2105	14.6	805	11.6
27	14.9	1815	16.7	950	13.7
28	13.1	0	15.0	2355	12.0
29	12.0	1820	12.8	750	11.2
30	11.1	0	12.2	2350	10.6
31	10.8	1940	12.0	810	9.7
TOTAL	463.3		527.1		410.1
AVERAGE	14.9		17.0		13.2
MAXIMUM	20.2		23.1		18.0
MINIMUM	10.3		11.6		9.1

ARCTIC NATIONAL WILDLIFE REFUGE

Niguanak River

SEPTEMBER 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C	OF MAX	DEG.C	OF MIN	DEG.C
	Avg	Temp	Max	Temp	Min
1	11.7	1740	12.9	800	10.8
2	10.5	0	11.6	955	10.1
3	10.2	1645	10.4	2340	9.9
4	11.0	1930	13.1	800	9.5
5	11.7	1955	13.0	825	10.4
6	12.0	1705	13.1	825	10.9
7	11.7	1710	13.1	845	10.6
8	11.4	1855	13.4	835	9.4
9	13.0	1755	14.0	910	12.1
10	13.5	1720	15.3	715	12.3
11	12.7	0	13.8	2355	12.3
12	11.7	0	12.2	1030	11.2
13	11.1	0	12.0	2355	10.3
14	8.5	0	10.3	2350	7.4
15	6.8	0	7.4	930	6.3
16	6.5	1720	7.2	730	6.0
17	6.4	1805	7.4	800	5.6
18	5.7	0	6.3	615	5.6
19	5.7	1825	5.9	440	5.6
20	5.8	1755	6.2	40	5.6
21	5.7	1510	5.9	2030	5.7
22	5.8	1415	5.9	10	5.7
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	209.1		230.4		193.3
AVERAGE	9.5		10.5		8.8
MAXIMUM	13.5		15.3		12.3
MINIMUM	5.7		5.9		5.6

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit River

LOCATION.-Lat 69°39'30", Long 144°22'52", in NW1/4SW1/4 sec.31, T.4N., R.32E., 0.5 miles below the Wilderness boundary, 37.5 miles southwest of Kaktovik, Alaska.

DRAINAGE AREA.-520.1 mi², of which 517.5 mi² are located within the Arctic National Wildlife Refuge Wilderness area. Glaciers account for 2.3 percent of the drainage area or about 12 mi² depending on existing climatic conditions.

REMARKS.-This is a 6th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature, 15.9°C Aug. 13, 1989.

JUNE 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	- - -	- - -	- - -	- - -	- - -
19	5.5	1945	8.6	635	2.6
20	7.7	1415	9.4	700	6.1
21	9.1	2110	13.3	550	5.7
22	9.2	0	11.7	950	7.6
23	8.6	1925	11.7	730	5.8
24	9.1	1855	10.8	755	7.3
25	7.4	0	9.6	735	5.5
26	7.5	1935	10.0	900	5.5
27	9.3	1815	12.5	630	6.3
28	9.8	1815	12.2	815	7.5
29	9.8	1825	12.4	835	7.6
30	9.5	1945	11.1	755	7.8
TOTAL	102.5		133.3		75.3
AVERAGE	8.5		11.1		6.3
MAXIMUM	9.8		13.3		7.8
MINIMUM	5.5		8.6		2.6

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit River

JULY 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	7.5	0	10.1	2355	6.4
2	6.8	1910	9.3	510	4.8
3	7.2	2035	9.9	730	4.9
4	10.0	1935	13.5	630	6.6
5	12.0	1755	14.1	640	9.5
6	11.4	1805	13.0	650	9.9
7	12.1	1540	14.0	540	10.1
8	11.0	0	12.8	910	10.2
9	10.6	1735	13.1	730	8.9
10	11.4	1815	14.4	645	8.4
11	11.5	1710	13.6	825	9.8
12	10.2	1940	12.0	625	8.6
13	10.5	1815	12.3	650	8.5
14	11.3	2015	13.7	730	9.3
15	11.6	1845	13.1	730	9.8
16	11.2	1825	12.6	715	9.4
17	9.3	0	11.1	2355	7.5
18	7.0	1930	8.9	810	5.5
19	8.7	1945	11.9	615	5.8
20	9.9	1510	10.9	745	9.0
21	9.6	1805	11.5	625	8.0
22	7.9	0	9.4	940	7.2
23	8.9	1940	11.1	710	6.8
24	9.8	1810	12.2	745	7.6
25	9.3	1735	10.9	720	7.7
26	9.8	1545	11.5	810	8.0
27	7.6	0	9.9	945	6.7
28	7.1	1850	8.8	810	5.0
29	8.8	1940	12.2	705	5.7
30	10.9	1855	14.0	700	7.9
31	11.9	1815	14.8	735	8.9
TOTAL	302.8		370.6		242.4
AVERAGE	9.8		12.0		7.8
MAXIMUM	12.1		14.8		10.2
MINIMUM	6.8		8.8		4.8

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit River

AUGUST 1989

DATE	TEMP DEG. C	TIME OF MAX	TEMP DEG.C	TIME OF MIN	TEMP DEG.C
	AVG	TEMP	MAX	TEMP	MIN
1	11.5	0	13.5	820	10.6
2	11.9	1715	13.8	820	10.3
3	10.4	0	12.3	1100	9.7
4	9.2	2020	10.4	1000	7.9
5	10.1	1920	13.0	700	7.5
6	11.8	1920	14.3	545	9.6
7	12.5	1720	14.8	630	10.6
8	12.9	1850	15.6	700	10.5
9	12.6	2000	14.9	705	10.0
10	13.4	1725	15.4	715	11.2
11	13.5	1605	15.1	745	12.2
12	12.3	1600	13.8	755	10.2
13	13.4	1700	15.9	735	10.9
14	11.7	0	14.2	2355	10.1
15	9.0	1825	10.1	735	8.0
16	7.8	0	8.9	825	6.7
17	7.7	0	8.6	2355	7.2
18	7.5	1955	9.8	745	5.6
19	9.4	1930	11.8	725	7.0
20	10.6	1935	12.0	825	9.3
21	9.0	0	11.3	2355	7.1
22	7.5	1910	9.7	800	5.7
23	8.0	1855	10.4	730	5.7
24	8.6	1835	11.1	805	6.0
25	8.8	1735	10.3	830	6.9
26	8.9	0	9.7	830	7.7
27	9.4	2015	10.6	740	8.5
28	10.5	1810	11.9	905	9.1
29	9.4	0	10.8	845	8.2
30	9.2	2020	10.4	805	7.7
31	8.7	0	10.0	1000	7.3
TOTAL	317.2		374.4		265.0
AVERAGE	10.2		12.1		8.5
MAXIMUM	13.5		15.9		12.2
MINIMUM	7.5		8.6		5.6

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit River

SEPTEMBER 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	8.6	1910	9.8	845	7.1
2	8.3	1850	10.0	825	6.9
3	7.0	0	8.5	945	6.2
4	7.0	1930	7.7	835	6.4
5	7.6	1935	9.2	735	6.4
6	8.2	1830	9.2	840	6.9
7	7.8	0	8.5	2355	7.0
8	6.6	1915	8.3	840	4.9
9	6.4	2215	8.2	830	4.4
10	8.4	2050	9.7	820	7.0
11	9.6	1705	10.7	715	8.7
12	8.4	0	9.6	2355	7.6
13	6.9	1905	7.9	900	5.6
14	5.5	0	7.2	2355	4.5
15	3.0	0	4.4	2355	2.2
16	2.2	1750	2.9	725	1.7
17	1.8	0	2.4	935	1.3
18	1.6	1705	2.4	835	0.8
19	1.2	1650	2.0	930	0.4
20	0.3	0	1.1	2335	0.0
21	0.1	1700	0.7	0	0.0
22	0.1	1640	0.2	30	0.0
23	0.1	1440	0.2	450	0.0
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	116.7		140.8		96.0
AVERAGE	5.1		6.1		4.2
MAXIMUM	9.6		10.7		8.7
MINIMUM	0.1		0.2		0.0

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

LOCATION.-Lat 69°39'53", Long 144°24'52", in NE1/4NW1/4 sec.36, T.4N., R.31E., 3000 ft. downstream of Sadlerochit Spring, 37.5 mi. southwest of Kaktovik, Alaska.

DRAINAGE AREA.-0.5 mi².

REMARKS.-This a 2nd Order drainage with 2 springs contributing most of the flow.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature, 15.9°C Aug. 7, 1989; Minimum Temperature 9.6°C July 17 and Aug. 20, 1989.

JUNE 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	- - -	- - -	- - -	- - -	- - -
15	- - -	- - -	- - -	- - -	- - -
16	- - -	- - -	- - -	- - -	- - -
17	- - -	- - -	- - -	- - -	- - -
18	11.7	1640	13.7	545	10.0
19	12.1	1145	13.6	20	11.4
20	13.4	1435	15.5	220	11.0
21	13.0	1315	15.5	2355	12.1
22	13.1	1640	15.0	500	11.8
23	13.2	1435	15.0	145	11.8
24	12.8	1255	14.0	410	12.0
25	13.1	1500	15.0	440	11.9
26	13.7	1440	15.5	250	11.6
27	13.5	1240	15.0	405	12.2
28	13.6	1605	15.4	315	12.0
29	13.4	1255	14.6	145	12.1
30	12.2	1740	12.9	915	11.4
TOTAL	168.8		190.7		151.3
AVERAGE	13.0		14.7		11.8
MAXIMUM	13.7		15.5		12.2
MINIMUM	11.7		12.9		11.0

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

JULY 1989

DATE	TEMP DEG. C	TIME OF MAX AVG	TEMP MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	12.8	1530	14.5	420	11.4
1	12.6	1250	13.7	125	11.5
2	13.8	1430	15.6	250	11.9
3	13.8	1155	15.3	405	12.7
4	13.6	1405	15.3	255	12.3
5	14.0	1225	15.6	145	12.9
6	13.0	1105	13.8	1920	12.5
7	13.5	1705	15.1	245	12.3
8	13.9	1505	15.5	220	12.1
9	13.6	1515	15.8	2355	11.7
10	12.8	1715	14.6	150	10.9
11	13.8	1330	15.4	435	12.5
12	13.8	1310	15.1	100	12.9
13	13.8	1510	15.5	345	12.8
14	13.6	1305	15.1	420	12.5
15	12.2	0	12.8	2355	10.9
16	11.6	1740	13.3	330	9.6
17	13.2	1610	14.9	335	11.5
18	12.8	1255	13.3	2355	12.2
19	13.0	1500	14.1	310	12.1
20	12.0	1420	12.6	2345	11.4
21	12.9	1515	14.8	30	11.3
22	13.1	1310	15.2	210	12.0
23	12.9	1345	14.1	425	11.8
24	13.0	1400	14.9	2355	12.0
25	11.1	0	12.0	720	10.4
26	11.8	1510	13.0	400	10.4
27	13.0	1440	14.7	245	11.3
28	13.5	1500	15.1	250	12.2
29	13.6	1440	15.1	145	12.3
30	13.1	1825	13.4	330	12.7
TOTAL	405.2		449.2		367.0
AVERAGE	13.1		14.5		11.8
MAXIMUM	14.0		15.8		12.9
MINIMUM	11.1		12.0		9.6

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

AUGUST 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	13.7	1310	15.1	245	12.9
2	12.9	0	13.1	2345	12.4
3	12.2	1815	13.1	1115	11.1
4	13.2	1450	15.0	500	11.7
5	13.6	1445	15.0	120	12.4
6	13.7	1405	15.1	550	12.6
7	13.8	1235	15.9	355	12.6
8	13.8	1500	15.3	535	12.8
9	13.6	1435	14.8	340	12.8
10	13.4	1355	14.9	340	12.6
11	13.4	1410	14.8	430	12.6
12	13.6	1500	15.2	410	12.7
13	12.6	1135	13.7	2250	11.6
14	12.0	1025	12.8	155	11.5
15	12.0	1730	12.7	550	11.6
16	11.8	1455	12.3	2355	11.4
17	11.9	1445	13.0	625	11.0
18	13.0	1425	14.2	120	11.9
19	13.1	1610	13.8	15	12.6
20	11.0	205	12.8	1415	9.6
21	12.0	1445	13.9	0	10.6
22	12.5	1435	13.9	350	11.5
23	12.7	1415	14.0	610	11.7
24	12.8	1125	13.7	600	12.1
25	12.5	1015	13.1	2140	12.1
26	12.8	1600	13.7	0	12.3
27	12.9	1430	14.0	2235	12.3
28	12.5	1525	13.3	530	12.0
29	12.5	1245	13.0	640	11.9
30	12.4	1300	13.1	600	12.0
31	12.2	1445	13.0	445	11.5
TOTAL	396.1		431.3		370.4
AVERAGE	12.8		13.9		11.9
MAXIMUM	13.8		15.9		12.9
MINIMUM	11.0		12.3		9.6

ARCTIC NATIONAL WILDLIFE REFUGE

Sadlerochit Spring Creek

SEPTEMBER 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	12.4	1445	13.5	2355	11.5
2	12.0	1420	12.8	255	11.4
3	12.2	1735	12.5	2230	11.9
4	12.4	1610	13.1	135	11.9
5	12.6	1235	13.5	10	12.1
6	12.2	1635	12.6	2320	11.7
7	12.2	1340	13.2	710	11.4
8	12.5	1520	13.4	130	11.7
9	12.8	1215	13.5	440	12.2
10	12.8	1445	13.8	2355	12.2
11	12.3	1350	12.6	2230	11.9
12	12.2	1435	12.8	455	11.7
13	11.5	25	12.0	2155	10.8
14	10.9	1510	11.4	2345	10.4
15	11.2	1355	11.9	0	10.4
16	11.1	250	11.3	940	10.8
17	11.5	1415	12.0	2335	10.7
18	11.0	1500	11.6	535	10.2
19	11.4	1215	12.0	2355	10.7
20	10.8	1330	11.8	2200	10.3
21	10.9	1345	11.9	150	10.2
22	11.3	1355	12.0	2050	10.9
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -

TOTAL	260.2	275.2	247.0
AVERAGE	11.8	12.5	11.2
MAXIMUM	12.8	13.8	12.2
MINIMUM	10.8	11.3	10.2

ARCTIC NATIONAL WILDLIFE REFUGE

Sikrelurak River

LOCATION.-Lat 69°54'43", Long 142°30'52", in SE1/4SE1/4 sec.36, T.7N., R.38E., at confluence with the West Fork Sikrelurak River, 31 mi. south-east of Kaktovik, Alaska.

DRAINAGE AREA.-74.7 mi².

REMARKS.-This is a 4th Order drainage. Discharge records are initiated during breakup and discontinued at freeze-up of each year.

EXTREME FOR PERIOD OF RECORD.-Maximum temperature, 18.4°C July 14 and Aug. 9, 1989.

JUNE 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX MAXT	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	- - -	- - -	- - -	- - -	- - -
2	- - -	- - -	- - -	- - -	- - -
3	- - -	- - -	- - -	- - -	- - -
4	- - -	- - -	- - -	- - -	- - -
5	- - -	- - -	- - -	- - -	- - -
6	- - -	- - -	- - -	- - -	- - -
7	- - -	- - -	- - -	- - -	- - -
8	- - -	- - -	- - -	- - -	- - -
9	- - -	- - -	- - -	- - -	- - -
10	- - -	- - -	- - -	- - -	- - -
11	- - -	- - -	- - -	- - -	- - -
12	- - -	- - -	- - -	- - -	- - -
13	- - -	- - -	- - -	- - -	- - -
14	2.1	1530	4.1	540	0.4
15	3.3	1735	6.6	445	0.1
16	3.2	1910	4.9	420	1.7
17	5.2	1515	10.6	505	1.4
18	4.3	1815	7.9	540	1.3
19	3.9	1930	5.5	830	2.7
20	4.7	1850	8.2	620	1.7
21	6.8	1900	9.3	525	3.9
22	7.3	1400	10.1	745	4.4
23	8.5	1710	12.9	810	5.1
24	9.0	1430	11.1	720	7.1
25	8.8	1655	12.4	655	5.8
26	8.6	1735	11.9	520	5.5
27	8.8	1755	12.6	555	5.7
28	10.1	1650	13.9	550	6.3
29	9.9	1505	13.0	540	7.0
30	8.7	1700	11.4	1025	6.0

TOTAL	113.2	166.4	66.1
AVERAGE	6.7	9.8	3.9
MAXIMUM	10.1	13.9	7.1
MINIMUM	2.1	4.1	0.1

ARCTIC NATIONAL WILDLIFE REFUGE

Sikreturak River

JULY 1989

DATE	TEMP	TIME	TEMP	TIME	TEMP
	DEG. C AVG	OF MAX TEMP	DEG.C MAX	OF MIN TEMP	DEG.C MIN
1	8.6	1725	12.6	605	5.0
2	7.7	0	8.9	520	6.3
3	- - -	- - -	- - -	- - -	- - -
4	12.8	1605	16.9	555	8.8
5	12.5	1540	15.6	540	9.3
6	12.9	1545	16.7	635	9.9
7	11.0	0	13.1	2355	8.9
8	10.4	1815	14.2	635	7.0
9	12.3	1740	16.3	700	9.1
10	12.6	1815	16.8	645	9.8
11	12.6	1750	15.2	430	10.5
12	13.0	1650	16.4	545	10.1
13	14.0	1725	18.3	655	10.7
14	14.5	1640	18.4	730	11.7
15	14.5	1800	16.7	655	12.3
16	11.7	0	14.8	2355	9.0
17	9.9	1835	12.4	650	7.5
18	12.1	1635	16.1	605	8.0
19	12.6	1345	14.9	2355	11.2
20	10.8	1635	13.1	755	8.9
21	8.1	0	10.4	2355	6.5
22	8.7	1810	11.9	245	6.2
23	11.3	1615	15.1	530	8.2
24	11.6	1835	13.9	645	10.0
25	12.7	1720	16.1	535	10.0
26	10.3	0	12.3	2355	9.0
27	9.5	1615	12.3	620	7.0
28	10.6	1720	13.5	630	7.6
29	12.0	1740	15.6	535	8.6
30	12.3	1735	15.1	625	9.8
31	11.3	1715	12.6	635	10.4
TOTAL	337.2		427.3		261.0
AVERAGE	11.2		14.2		8.7
MAXIMUM	14.5		18.4		12.3
MINIMUM	7.7		8.9		5.0

ARCTIC NATIONAL WILDLIFE REFUGE

Sikrelurak River

AUGUST 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	12.1	1745	14.8	520	10.1
2	11.0	0	12.2	810	10.2
3	10.7	1835	13.1	735	9.0
4	11.9	1830	15.3	625	8.9
5	14.6	1720	18.0	555	11.6
6	15.7	1610	18.3	815	13.7
7	14.5	1555	16.7	640	12.5
8	14.8	1750	18.0	635	11.9
9	15.3	1555	18.4	700	12.6
10	15.2	1610	18.2	545	12.7
11	14.5	1520	16.9	725	12.7
12	14.7	1610	17.7	620	12.5
13	13.2	0	14.2	2355	11.8
14	11.9	1425	13.2	550	10.8
15	10.1	0	11.0	2355	9.2
16	8.6	1710	9.8	2355	7.2
17	6.7	1825	8.5	840	5.2
18	8.5	1645	11.7	635	5.7
19	10.7	1435	13.0	620	8.5
20	9.4	0	11.6	2355	7.8
21	8.6	1810	11.2	715	6.9
22	9.1	1720	11.9	700	6.4
23	9.2	1730	12.3	725	6.3
24	9.8	1725	12.5	705	6.8
25	10.1	1400	11.6	2355	8.2
26	9.2	1650	11.5	655	7.2
27	10.7	1625	12.7	750	9.5
28	8.6	0	10.0	2355	7.6
29	7.8	1720	8.7	715	6.9
30	6.7	0	7.6	2355	6.2
31	6.6	1750	8.2	740	5.3
TOTAL	340.5		408.8		281.9
AVERAGE	11.0		13.2		9.1
MAXIMUM	15.7		18.4		13.7
MINIMUM	6.6		7.6		5.2

ARCTIC NATIONAL WILDLIFE REFUGE

SikreLurak River

SEPTEMBER 1989

DATE	TEMP DEG. C	TIME OF MAX TEMP	TEMP DEG.C MAX	TIME OF MIN TEMP	TEMP DEG.C MIN
	Avg				
1	7.1	1615	8.7	705	6.0
2	5.8	0	6.5	825	5.3
3	5.4	1515	5.8	2355	4.9
4	6.1	1625	8.0	640	4.5
5	6.5	1635	8.2	655	4.9
6	6.9	1540	8.3	740	5.5
7	6.6	1610	8.3	835	5.3
8	6.1	1715	8.1	820	3.8
9	7.3	1620	8.6	810	6.0
10	8.1	1710	10.4	205	6.6
11	7.4	0	8.4	2355	6.7
12	6.4	1620	7.3	920	5.7
13	5.4	0	6.4	2355	4.7
14	3.3	0	4.7	2355	2.3
15	2.0	1810	2.3	820	1.6
16	1.4	1655	1.9	805	1.0
17	0.9	1755	1.6	925	0.5
18	0.3	0	0.6	2320	0.1
19	0.2	1800	0.3	2155	0.1
20	0.2	1715	0.4	145	0.1
21	0.1	1440	0.2	2350	0.0
22	0.1	1455	0.1	40	0.0
23	- - -	- - -	- - -	- - -	- - -
24	- - -	- - -	- - -	- - -	- - -
25	- - -	- - -	- - -	- - -	- - -
26	- - -	- - -	- - -	- - -	- - -
27	- - -	- - -	- - -	- - -	- - -
28	- - -	- - -	- - -	- - -	- - -
29	- - -	- - -	- - -	- - -	- - -
30	- - -	- - -	- - -	- - -	- - -
TOTAL	93.6		115.1		75.6
AVERAGE	4.3		5.2		3.4
MAXIMUM	8.1		10.4		6.7
MINIMUM	0.1		0.1		0.0